THE

physical therapy REVIEW

34th Annual Conference
American Physical Therapy Association
Hotel Statler Detroit, Michigan
June 23-28, 1957

Professional Income of Physical Therapists

Trends of Physical Therapy Services in Crippled Children's Programs — ARRINGTON

Methyl Salicylate Packs in the Treatment of Poliomyelitis — CHRISMAN, MITTNACHT, HOOD, BROWNE, and NEWTON

Pott's Paraplegia: A Case Study in Total Treatment — ALTERMAN

Suggestions from the Field — BARISH

Volume 37, Number 2 **February 1957**

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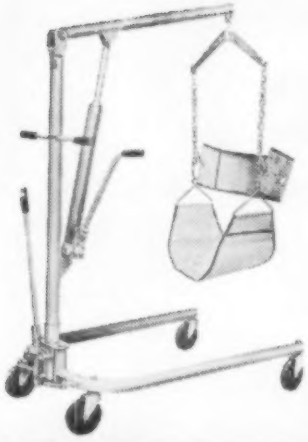

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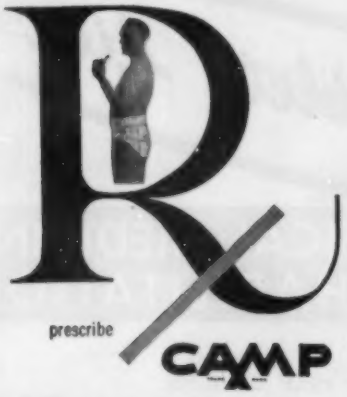

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APTA—OVR Institute Papers
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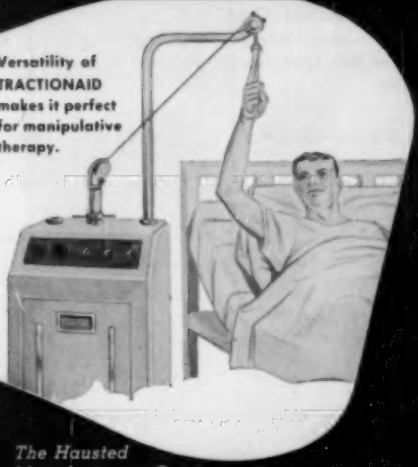

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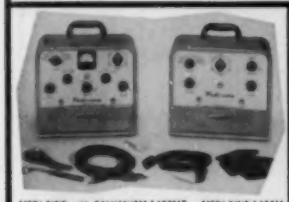

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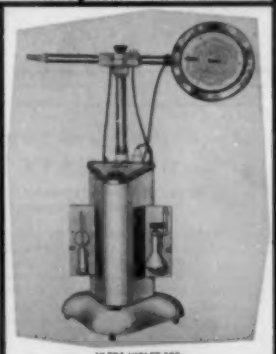

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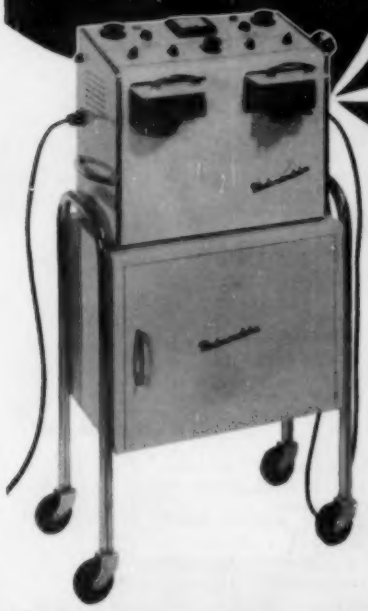

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Postgraduate Cerebral Palsy Course	Columbia University College of Physicians and Surgeons 630 West 168 Street New York, N. Y.	Office of the Dean Postgrad. Course in C. P. Coll. Phys. & Surg. 630 West 168 Street New York, N. Y.	March 4 to May 3, 1957
Technics of Neuromuscular Reeducation	California Rehabilitation Center Vallejo, California	Margaret Knott Chief P. T. Calif. Rehab. Center Vallejo, California	October 1 January 1 April 1
Physical Therapy in the Care of Neuromuscular Disease	Georgia Warm Springs Foundation Warm Springs, Georgia	Robert L. Bennett, M.D. Medical Director Ga. Warm Springs Found. Warm Springs, Georgia	January April October
Neurological Bases for Rehabilitation	University of Penn. & U.S. Office of Voc. Rehab.	Miss Mildred Wood General Laboratories Bldg. University of Pennsylvania 215 S. 34th Street Philadelphia 4, Pa.	March 11 -- 22, 1957
Advanced Course in Physical Rehabilitation Methods	New York University-Bellevue Medical Center & New York University School of Education	Mrs. Edith Lawton Director, Courses for Physical Therapists Institute of Physical Medicine and Rehabilitation 400 E. 34th Street, N.Y., N.Y.	April 29 — May 24, 1957
Principles of Rehabilitation	University of Pennsylvania & U. S. Office of Voc. Rehab.	Rehabilitation Center Hospital of the University of Pennsylvania Philadelphia 4, Pa.	April 22–26, 1957 June 17–21, 1957
Prosthetic Rehabilitation of Upper Extremity Amputee	College of Engineering & Postgraduate Medical School, New York University	Postgraduate Med. Sch. Prosthetic Education New York University 550 First Avenue, N.Y., N.Y.	Feb. 18 — Mar. 1, 1957
Prosthetic Rehabilitation of Above-Knee Amputee	College of Engineering & Postgraduate Medical School New York University	Postgraduate Med. Sch. Prosthetic Education New York University 550 First Avenue New York, N. Y.	March 28 — April 5, 1957 *P.T.'s in:* Ky., S., Ind., Ill. May 2–10, 1957 *P.T.'s in:* Mich., N. Ohio, W. Va. June 6–14, 1957 — Open
Practical Management of Poliomyelitis and Principles of Rehabilitation	Baylor University College of Medicine, Southwestern Poliomyelitis Respiratory Center & Jefferson Davis Hospital in cooperation with The National Foundation for Infantile Paralysis	William A. Spencer, M.D. Medical Director Southwestern Poliomyelitis Respiratory Center Education Office 1300 Kenwood Lane Houston, Texas	Feb. 25 — Mar. 1, 1957
Workshop in Education for Childbirth	Dept. of Obstetrics and Gynecology U. of Miss., Medical Cen. Jackson, Mississippi	Mrs. Mabel L. Fitzhugh Research Associate in Obstetrics U. of Miss., Medical Center	March 25 — March 30

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Physical Therapy Programs—1956—A list of schools approved by the Council on Medical Education and Hospitals of the American Medical Association.

Sources of Financial Assistance for Physical Therapy Student — 1956.

Poster: Join Ranks in a Proud Profession—Career poster for bulletin boards.

Career Facts—A brief on needs and opportunities.

Physical Therapy Record—A news tabloid with pictures depicting work of physical therapy for lay groups.

Open House Plans and Suggestions—A practical easy-to-use guide for a physical therapy department Open House for prospective students.

ORGANIZATION

Code of Ethics of the American Physical Therapy Association.

Personnel Policies for Physical Therapists.

Use of Nonprofessional Personnel — An illustrated pamphlet to assist the physical therapist to determine the need for nonprofessional personnel and to give guidance on inservice training and utilization.

Approved Schools and Courses of Physical Therapy 1928-1954.

Essentials of a Hospital Department — Physical Therapy (To members 25¢).

State Registration of Physical Therapists—Abstracts of state laws regarding registration of physical therapists.

Chapter Directory — List of chapter presidents and secretaries and district chairmen.

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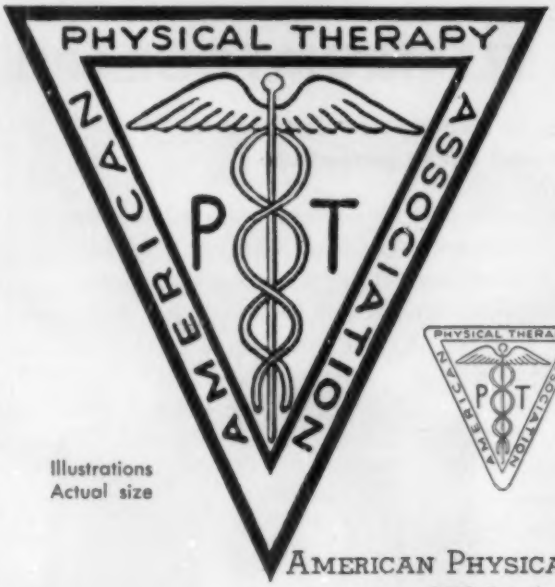

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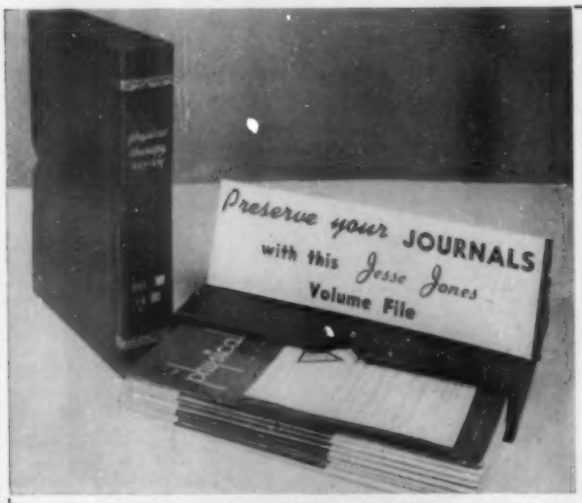

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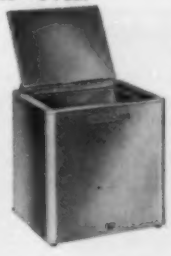

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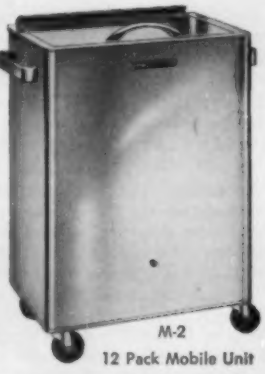

M-2

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AMICK Suspension AMBULATOR for the

rehabilitation of patients suffering from Polio, Strokes, Cerebral Palsy, Spina Bifida, Encephalitis, hip fractures, amputations and Multiple Sclerosis.

Eliminates Fear of Falling

Promotes Patient Confidence

Longer Treatment Periods Possible

Patient Progress Hastened

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Adaptable and Adjustable

Support straps fit any patient. Works well in or out of parallel bars. May function either as a support or safety device. Excellent for neck traction or pulley exercise. Easily adapted for home use.

LOW PRICE—Write for complete information.

AMICK AMBULATOR Mfg. Co.

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GIVES MORE THAN STANDARD TREATMENT

HILL TRACTION . . .

The mechanical treatment table with the *gliding* top for rolling traction.

For stretching traction there is a complete selection of harnesses to provide 0 to 150 "pull", constant or intermittent, in any body area.

With table top in motion each articulation is worked separately and evenly by semi-pneumatic spring-cushioned rollers. Heat and vibration available as optional equipment. With motor off, HILL TRACTION becomes standard all-purpose table.

WRITE FOR COMPLETE INFORMATION

HILL LABORATORIES COMPANY

MALVERN, PENNSYLVANIA

(Written January 1, 1957)
11 A.M.

MOVE IT—EVEN IF IT HURTS

Just crawled out of my swimming pool along with my eleven year old daughter and various neighborhood moppets. Of course, it's invigorating even though I do keep the water at 75°F.

I think if all America went swimming for fifteen minutes, four times per week, most therapists would have to look for other types of employment and I'd be out of business.

My mother, who lived near the ocean, took a dip five or six days per week in spite of (or because of) high blood pressure, a bum pump, varicose veins, glaucoma, only partial eyesight in one eye as a result of iridectomies done on both (thirty years before), severe dental troubles all her life, thousands of headaches, female troubles, and whatnot. She produced five children, saw them all through college on a carpenter's wages (she went through second grade only in Wales, England); maintained without servants a 5,500 square foot home; was active in social welfare and women's club groups; wrote three books of poetry; took an active part in selling houses that my Dad built; served as a nurse and baby sitter for about twelve grandchildren and about thirty great grandchildren; took an active part in assisting the families of her own eleven brothers and sisters. She never weighed more than 100 pounds soaking wet.

Mother died at 86. It was just a series of minor strokes over a period of two months. The human machinery at last wore out. But she kept up this ocean bathing all year round until seven or eight months before she died. Mother swore by that daily dip. It kept her going. Certainly in her case it seemed to be very beneficial general therapy for the entire body and its ailments.

I think today we are frequently guilty of babying our patients too much, not to mention ourselves. Oh sure, there should be proper care for a cold and other acute conditions as any physician will prescribe, . . . but the chronics? Some physicians in my circle of friends practice a principle of "Move it even if it hurts." This goes for the rheumatics, the sprains, strains, the circulatory and neuro disorders, and a myriad of conditions of the sick and the halt.

I am no physician but nearly thirty one years of close alliance with the medical profession and observations of the work of hundreds with thousands of patients, certainly suggests to me that there is a great deal to the "Move it even if it hurts" philosophy.

I know two therapists doing a daily eight or nine hour stint whose cardiograms would send most of us screaming in self-pity to the closest rest home. I know three therapists, one a wheel-chair case, all crippled by childhood polio. These three are on the job each day.

I know of a businessman in his seventies who for eight years has had severe Parkinson's disease. He jokes he is the best cocktail shaker in the United States as he travels the entire country vigorously attending a tough competitive business.

I know a lawyer who at 70 still cheerfully and thoroughly practices in spite of a mess of both duodenal and gastric ulcers. Twenty years ago he had severe hemorrhages and was hauled to the hospital. I was with him at that time as he refused surgery under pronouncement that he would die within a few months if he failed to have immediate surgical intervention.

I am sure that you come in contact with many such people in your daily work. It must be an inspiration to you. Can you pass this inspiration on to some of your other patients. . . . those who are discouraged, are weak, or those who simply never did have any guts? If you can—and do—you are more than just a PT. You have earned "*Eagles*" for your shoulders.

Cordially,

Cecil Birtcher

Cecil Birtcher, President
The Birtcher Corporation

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The Physical Therapy Review

Official Publication of The American Physical Therapy Association

Vol. 37 February 1957 Number 2

Professional Income of Physical Therapists

Analysis of 1956 Survey of Association Members

One of the several functions of the American Physical Therapy Association, as defined in its bylaws, is "to promote and protect the economic and general welfare of physical therapists." Therefore, one of the Association's activities carried on in the National Office is its Placement Service. This is for the convenience of members and prospective employers who depend on the Association to supply reliable information regarding current salaries, desirable qualifications of physical therapists for certain appointments, and acceptable personnel policies. In the past, the Association has attempted to collect this material and several chapters have conducted surveys within their jurisdictions. The need for current data on the national level, which would also identify regional variations, became apparent. Consequently, the Board of Directors of the American Physical Therapy Association authorized a survey of members which was conducted in 1956 to determine salaries earned, personnel policies in existence, and the professional background of its membership. The questions asked made it possible to analyze the results, by several categories, as they relate to the employment of physical therapists.

Method of Survey

Items to be used in the survey were set up on a variation of the punch card ("Keysort" produced by the McBee Company). (Fig. 1) In January 1956, a survey card with a letter of instruction and a return postpaid envelope was sent to each of the 4,837 active members of the American Physical Therapy Association. The instruction stated that applicable information was to be indicated by marking the appropriately numbered items in each category on the body of the card. In order to determine variations of salaries paid in different areas of the country, calculations were based on the nine regions as defined by the United States Public Health Service. A cutoff date for including returns was established as June 1, 1956, although cards returned following that date may be included in later studies.

As completed cards were returned, each card was processed by hand-punching the appropriate spaces as indicated on the border of the card. They were then manipulated and separated by the "needle" method for each category of information, and the results were tabulated on columnar form sheets. Completed cards were returned from 3,802 members (79 per cent) by June 1, 1956. It was necessary to withhold 472 of the returned cards (10 per cent) because the information on the cards could not be related to a salary study. This report is based therefore on 69 per cent of the active membership, as obtained from data on 3,330 cards. (Table 1)

Tabulation of Salary Information

The salary information was collected and tabulated in ranges. For simplification in recording, the midpoint was chosen to represent the range. For example, in the salary range of $4,000 to $4,499, the midpoint became $4,250.

Since a median is more meaningful than an average in a study of this kind, all salary figures

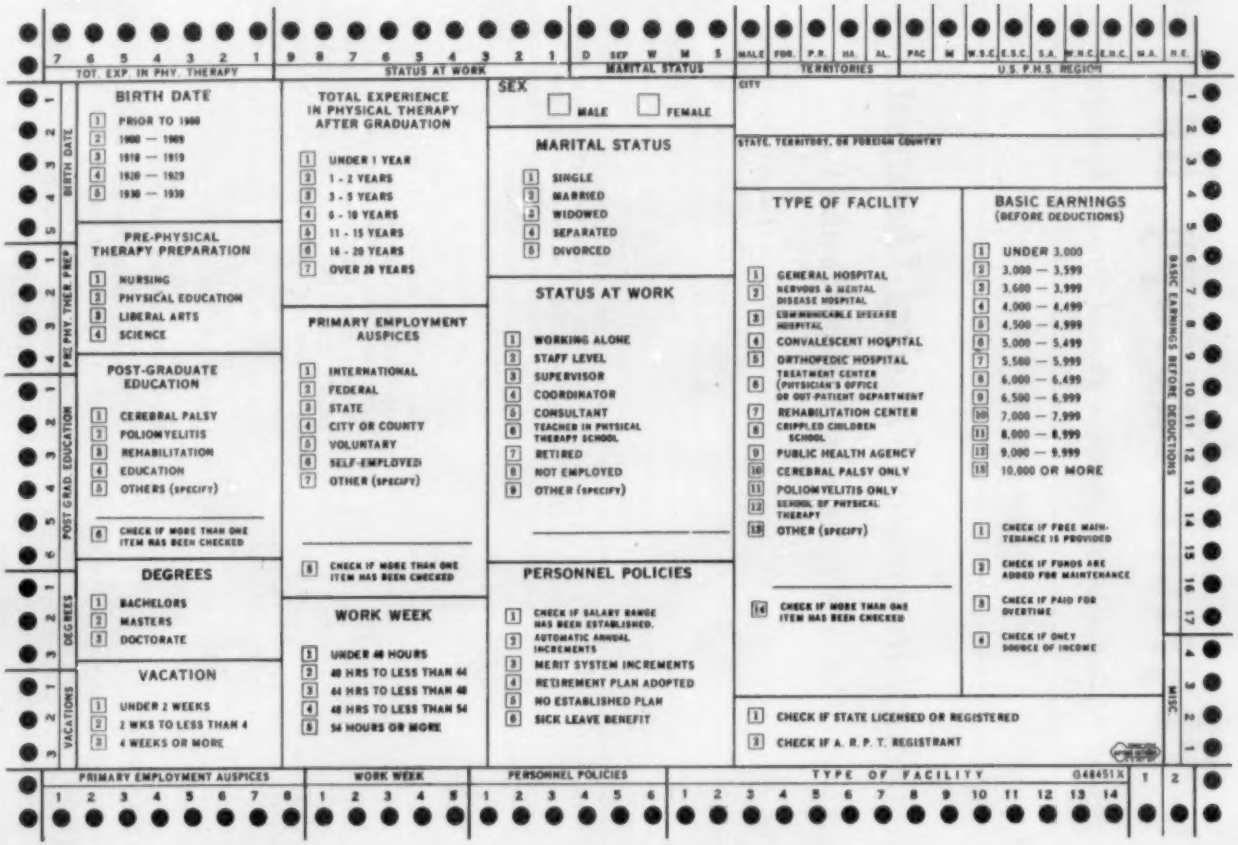

Figure 1. Facsimilie of punch card used in survey.

TABLE 1

RESPONSE FROM MEMBERS OF THE AMERICAN PHYSICAL THERAPY ASSOCIATION IN STUDY OF PERSONNEL POLICIES CONDUCTED IN 1956

Regions	Active Members	Number Used for Salary Study	Percentage of Active Members Used for Salary Study	Percentage of Members by Region Compared to Total
New England Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut	458	306	67	9
Middle Atlantic New York, New Jersey, Pennsylvania	918	608	66	18
East North Central Ohio, Indiana, Illinois, Michigan, Wisconsin	895	655	73	20
West North Central Minnesota, Iowa, Kansas, Missouri, North Dakota, South Dakota, Nebraska	357	251	70	8
South Atlantic Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida	557	362	65	11
East South Central Kentucky, Tennessee, Alabama, Mississippi	151	94	62	3
West South Central Arkansas, Louisiana, Oklahoma, Texas	347	249	72	7
Mountain Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada	218	149	68	4
Pacific Washington, Oregon, California	936	656	70	20
Total	4,837	3,330	69	100

presented are the median salaries for each category of information studied. As presented in table 2, the median salary of staff level physical therapists in the West South Central region is $4,000. This indicates that in this region 50 per cent of the physical therapists in this category are earning more than $4,000 and 50 per cent are earning less than $4,000.

The tables published herewith are self explanatory in regard to professional income in the various categories. As opportunity provides, further reports will make additional findings available as to individual states, personnel policies, and the professional background of members of the American Physical Therapy Association.

TABLE 2

MEDIAN SALARY RELATED TO STATUS AT WORK AND YEARS OF PROFESSIONAL EXPERIENCE

	New England	Middle Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific	National Median Salary	Median Number of Years of Working Experience	Percentage Working in Each Category
Working Alone	3,750	4,250	4,750	4,750	4,250	4,000	4,750	4,250	4,250	4,250	6 – 10	15
Staff Level	3,250	3,750	4,250	3,750	3,750	4,000	4,000	4,250	4,250	3,750	3 – 5	40
Supervisor	4,250	4,750	5,000	4,750	5,000	5,000	5,250	4,750	4,750	4,750	6 – 10	27
Coordinator	5,000	5,250	5,750	5,750	5,750	5,750	5,250	5,250	5,250	5,500	6 – 10	2
Consultant	4,750	5,750	6,000	4,750	5,000	5,750	5,750	4,750	5,500	5,750	11 – 15	3
Teacher*	5,250	5,750	5,250	5,000	4,250	.....	4,750	5,250	4,750	5,250	11 – 15	3
Self-Employed	3,300	5,500	5,750	4,750	5,750	.....	5,500	5,250	6,000	5,750	6 – 10	8
Other	5,250	5,500	5,000	6,000	4,750	.....	5,500	6,250	6,750	5,750	6 – 10	2
Median Salary in area	3,750	4,250	4,750	4,500	4,500	4,500	4,750	4,250	4,750	4,400	6	

* Connected with School of Physical Therapy as Director or Instructor.

TABLE 3

MEDIAN SALARY RELATED TO TYPE OF FACILITY

	New England	Middle Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific	National Median Salary	Percentage of Total Number in Each Category
General Hospital	3,600	4,000	4,500	4,750	4,750	4,250	4,500	4,250	4,250	4,500	37
General Hospital including a Rehabilitation Center	3,750	4,000	4,750	5,250	4,250	.....	4,750	.....	5,000	4,500	2
Neuropsychiatric Hospital	5,000	5,000	4,750	5,250	5,250	5,250	6,250	4,250	4,750	5,000	3
Communicable Disease Hospital	3,600	5,000	4,750	.....	5,250	.....	5,000	4,250	4,500	4,500	1
Convalescent Hospital	3,750	4,000	4,250	5,750	4,250	4,750	4,500	4,000	4,500	4,000	3
Orthopedic Hospital	3,250	4,000	3,750	3,750	4,250	4,750	4,750	3,750	4,750	4,000	3
Treatment Center*	3,750	4,250	4,750	4,750	4,750	4,750	5,000	4,500	4,750	4,750	11
Rehabilitation Center	3,750	3,750	4,500	4,500	4,250	5,000	4,750	4,250	4,250	4,250	8
Crippled Children School	3,750	4,500	5,750	5,000	4,250	3,250	5,250	4,750	4,500	4,500	6
Public Health Agency	4,250	4,500	4,250	4,750	4,250	4,500	5,250	5,250	5,000	4,500	7
Cerebral Palsy Center	3,600	4,000	4,000	4,250	4,250	4,000	5,000	4,000	5,000	4,000	4
Poliomyelitis Center	4,000	3,750	4,750	4,750	3,250	4,000	4,250	.....	4,750	4,000	2
School of Physical Therapy	5,250	5,250	5,000	4,250	4,250	.....	4,750	4,500	4,750	4,750	4
Other	4,250	5,000	5,250	4,750	4,750	4,750	5,250	5,000	5,250	5,250	9

* Treatment Center category includes physician's office or outpatient department.

TABLE 4

MEDIAN SALARY RELATED TO YEARS OF PROFESSIONAL EXPERIENCE

	New England	Middle Atlantic	East North Central	West North Central	South Atlantic	East South Central	West South Central	Mountain	Pacific	National Median Salary	Percentage of Total Number in Each Category
Under 1 year	3,250	3,600	3,750	3,600	3,250	3,250	3,750	3,750	3,750	3,600	10
1 – 2 years	3,250	3,750	3,750	4,000	3,750	3,750	3,750	4,000	4,000	3,750	15
3 – 5 years	3,750	4,250	4,250	4,750	4,250	4,750	4,750	4,000	4,500	4,250	22
6 – 10 years	3,750	4,250	5,250	4,750	4,750	4,750	5,000	4,750	4,750	4,750	23
11 – 15 years	4,250	4,500	5,250	5,250	5,000	4,750	5,250	5,000	5,250	5,250	16
16 – 20 years	4,250	4,750	5,250	4,750	5,000	4,500	5,750	5,750	5,000	5,250	5
over 20 years	4,750	4,250	5,250	4,750	5,250	5,250	5,250	4,250	4,750	4,750	9

TABLE 5

SUMMARY OF SALARY LEVELS BY REGIONS

Region	Per cent earning salary under $3,600	Per cent earning salary $3,600—$4,999	Per cent earning salary $5,000 and over
New England	41	45	14
Middle Atlantic	18	57	25
East North Central	8	53	39
West North Central	10	60	30
South Atlantic	15	52	33
East South Central	14	55	31
West South Central	6	53	41
Mountain	11	58	31
Pacific	10	57	33
National Figure	14	55	31

Trends of Physical Therapy Services in Crippled Children's Programs

Clara M. Arrington, B.P.E.

The first state program to employ a physical therapist was Vermont. That was in 1915. The physical therapist, Janet Merrill, joined the state department of health at that time to administer treatments to victims of a polio epidemic. At the present time the majority of states have physical therapists on their staffs. Even though some states as yet have not employed physical therapists to serve on their staffs, they do purchase this service from departments or individuals.

State programs have always employed physical therapists for the purpose of treating children who have been accepted for care by the state crippled children's agencies or for providing consultation to persons who are serving children.

Crippled children's programs operate in all states, the District of Columbia, Alaska, Hawaii, Puerto Rico, and the Virgin Islands. With one exception, all are now receiving grants for this purpose from the Federal government under the Social Security Act.

For 1956, the Congress of the United States appropriated $15,000,000 for Federal grants to finance these services to crippled children. These grants, administered by the Children's Bureau, United States Department of Health, Education, and Welfare, go to state crippled children's agencies, 32 of which are in departments of health.

These grants are for two main purposes: 1) to extend and improve services for locating crippled children; and 2) to provide medical, surgical, and other services for the diagnosis and care of children who are handicapped or have conditions that lead to crippling. This care can be provided in the child's home, in clinics, in hospitals, and in convalescent homes or in rehabilitation centers.

Half of the total of these annual grants from the Federal government must be matched dollar for dollar by the states. This half is known as Fund A. The remaining half, Fund B, does not have to be matched.

In 1956, each state, regardless of size, population, or wealth, could have received a grant of $60,000 out of Fund A. A state shares in the remainder of Fund A according to how many children under 21 years of age it has in relation to the child population in the entire United States.

A state shares in Fund B according to the relative size of the child population in that state, the relative financial resources of the state as shown by per capita incomes, and the special needs of children in rural areas.

No state, however, receives less than $25,000 from Fund B under the formula for carrying out its plan. State plans for crippled children are developed by state agencies and services are provided by state and local agencies working in close cooperation with the Federal government.

Twenty-five per cent of Fund B is reserved for grants for special projects of national or regional significance for the extension and improvement of crippled children's services. Some special projects that have received these funds are the Michigan program for the child amputee in Grand Rapids, the California program for services and research for the child amputee at the University of California at Los Angeles, and the New York program for a comprehensive rehabilitation center for crippled children at the Children's Hospital in Buffalo. This fund is also used for training professional personnel, and for meeting emergencies such as certain epidemics.

At the present time and until the final report of the 1955-56 survey is released, the exact number of physical therapists engaged in state and local programs is not known. Lucy Blair, Consultant, Department of Professional Services, American Physical Therapy Association, reported to the House of Delegates of the APTA on June 16, 1956, that to date 3,320 persons, or

Physical Therapy Consultant, Division of Health Services, Children's Bureau, Social Security Administration, Department of Health, Education, and Welfare, Washington 25, D. C.

69 per cent of the membership, have returned survey cards. Seven per cent of this number are employed in public health agencies. In 1952, the American Physical Therapy Association reported that of the 225 members who reported they worked in public health agencies, 183 were employed by state agencies, 8 by counties, and 7 by city governments. Miss Blair's figures indicate that the number of physical therapists employed through the use of federal, state, and local monies has been increasing since the 1952 report. Certainly more and more state crippled children's agencies are becoming aware of the value of physical therapy and have expressed a desire to add physical therapists to their staff. Also, only during the past few years have local health departments begun to employ physical therapists.

For several reasons this trend is expected to continue. The population of the United States is growing at a net rate of 7,000 daily or more than 2½ million persons annually. In ten years, 1966, it is estimated that there will be 55 million children from 5 to 19 years of age as against 41½ million today. To take care of this increase, additional physical therapy services will be required. In addition, more and more health agencies are broadening their programs to cover a wider range of handicapping conditions.

This, however, is not the complete picture yet. As Secretary Marion B. Folsom of the United States Department of Health, Education, and Welfare recently stated: "As new light dispels some medical problems, new problems emerge. The rapidly growing proportion of older persons in the population for example calls for greater attention to the enigmas of chronic disease." * This can be considered a forecast of what is to come as more and more public agencies extend their coverage to take care of the aged. By 1966 it is estimated that in the 65 age group there will be 17 million as compared to 14 million at the present.

These increases in both the young and the aged will require a large volume of medical care and physical therapy will be needed as part of that care in the prevention and treatment of disabilities.

Public programs are already feeling this impact as the assistance of physical therapists is being requested more frequently to care for patients with chronic diseases, both for direct service and consultation to other professional workers.

But as stated before, up to the present time physical therapists have been employed to serve only crippled children, with funds allotted for that specific group. Soon a point will be reached when additional physical therapists will be needed not only to take care of children but to take care of adults. A few states have already felt this pressure and have taken steps to enable physical therapists in public health programs to serve groups of all ages. This, of course, necessitates a reorganization of the staffing pattern in the state health departments.

The future staffing pattern on the state level will vary from state to state, depending on how services—such as nursing, nutrition, and medical social work—are organized to serve a variety of programs. For example, one state is considering a physical therapy division with the chief physical therapist directly responsible to the health officer. On the state level, consultants will be assigned to work specifically with certain programs such as crippled children and chronic diseases. On the local level, physical therapists on the staffs of county health departments will give direct service to all age groups.

Programs for the prevention of disability and for the correction as far as possible of handicapping conditions are expanding at a rapid rate. Physical therapists have a part to play in both prevention and correction, either through direct service or through consultation. They will be especially needed as state programs enlarge their services to include care during the early or acute phases of burns, spinal cord injuries, and other conditions. In such early care, their role primarily is to prevent contractures and to maintain or strengthen muscle function. They also must be ready to do their share in training patients with chronic handicapping conditions, such as the arthritic and the hemiplegic, to again perform daily activities.

The contribution of the physical therapist as a member of the amputee team has been well demonstrated. Experiences in caring for the adult amputee are now being translated into services for the child amputee, with special clinics being established for diagnosis and training. Some of the amputee clinics for children are maintained by state crippled children's agencies. Others are under private auspices.

When more states realize that children with amputations need the coordinated efforts of a number of different services, they will provide evaluation and training clinics and follow-up services for them. The child amputee needs close supervision and frequent evaluation to insure not only the maximum use of the artificial appliance but its proper fit and operation. In both

*Address before National Foundation for Medical Education, April 23, 1956.

of these functions, the physical therapist can assume a big role.

As a result of the Salk vaccine, it can now be anticipated that the number of future cases of poliomyelitis will decline. This reduction, of course, will mean fewer persons with residual paralysis. This does not mean, however, that physical therapists on state programs will have fewer patients to treat. Expanded activities with a wider variety of cases will be the result. In addition to spinal cord injuries, burns, amputations, and other conditions previously mentioned, increased services can be expected for a number of neurological conditions, including the brain-damaged child. Demand is also increasing to do more for children with muscular dystrophy, children who are mentally retarded, and persons with multiple sclerosis. Also, as physical therapists move into the adult field, they must face many problems that are as yet unsolved.

At the present time, of necessity, in many states little relationship exists between the title of the position of the state physical therapist and the actual job being done. In March 1954, the American Public Health Association Committee on Professional Education published its recommended "Educational and Experience Qualifications for Physical Therapists in Public Health Agencies." These recommendations were approved by the Board of Directors of the American Physical Therapy Association in November 1953.

The activities of physical therapists were listed under seven categories: namely, services to patients, consultation, records and reports, staff education, community planning, administration, and professional responsibilities. Physical therapists in state crippled children's agencies have developed more fully those activities that pertain to direct services for patients, than other activities. Lagging especially far behind are those related to consultation and community planning.

Physical therapists cannot afford to wait longer to assume their role in the development of community resources to meet the needs of the temporarily disabled and the permanently handicapped. Already some are giving consultation to nurses regarding the home-care of patients with arthritis and other conditions. Others are giving consultation and in-service training to nurses on a variety of procedures. Some are routinely participating in consultation with hospitals and convalescent homes. But are they making room in their busy schedule to give consultation to those divisions or individuals responsible for hospital home-care programs, outpatient services, rehabilitation centers, nursing homes, chronic disease facilities, and training programs for disabled homemakers? And they should not forget the health services for the school-age child, the state division of vocational rehabilitation and its area representatives, the welfare departments, and other public agencies. Nor should they overlook the multitude of private agencies that purchase or provide health services for the disabled and handicapped.

Consultation and assistance in community planning are needed today in all of these and many more areas. Care of patients has to go on and on. As new ways are found to provide better care, programs have to change.

Physical therapists cannot afford to sit by and wait for organizations and individuals to seek their services. If they do not give the consultation, someone else will. It is up to them to take the initiative, not only in contacting these organizations but also in providing opportunities to meet with them and let them know of the ways in which their skills can be useful to them.

In the past, physical therapists have been particularly concerned either with rendering the best treatment possible or with training some member of the family to carry out the treatment. Today they must still be concerned with their basic knowledge and skills. But is this enough? The answer most certainly is "no."

Today, they must know more than just how to give physical therapy. The changing philosophy from fragmented treatment to one of coordinated, patient-centered treatment to meet all of his needs, demands that they understand something about the cultural and emotional factors that influence not only their patients but their co-workers and even themselves. They need to understand their own feelings about normal and handicapped persons. They have to know how to work with people to best assist a patient to help him meet his total needs.

Today, physical therapists can no longer give all of their attention to the patient alone. They have to give some attention to the patient's family, his friends, and the community in which he lives. To do this, they must cooperate with, understand, and completely accept other professional workers—physicians, medical social workers, psychologists, nurses, occupational therapists, nutritionists, speech therapists, vocational counselors, teachers, cultural anthropologists, and others. No one person alone is able to do the total job of rehabilitation.

The ever increasing development of home-care

programs, whether under public or private auspices, has increased the demand for physical therapists equipped to function in this area.

A few physical therapists in public health are serving as instructors in schools of physical therapy. Some give lectures to student physical therapists. Others provide clinical practice as well as instructional work. Although all do not have such opportunities to assist the future physical therapists, every one of them has a responsibility to work with the schools, to let the directors know what physical therapists need to know and understand in order to be most productive as either employees of public health agencies or community agencies.

It is true that the majority of public health agencies do not employ the recent graduate. However, the person who gets basic preparation during his training period has a foundation to which he can later add more detailed knowledge.

In order for students to be prepared for home-care or field services, they must understand the role of other professional personnel in working with the patient, his family, and his community. They must have an understanding of effective interpersonal relations. They must understand the relationship of professional workers to the organization for which they work. They must have an understanding of cultural patterns and community organizations. They must have some knowledge of normal growth and development and the deviations of the disabled and handicapped, and to have an appreciation of the need for adaptive equipment. Students must know how they are expected to function in this kind of a service and have an opportunity to do clinical practice in home-care programs.

Physical therapists can provide the clinical experience that is needed. It is up to them to see that their physical therapy service is developed in such a way that it will meet the requirements for approved clinical practice for student physical therapists.

The physical therapy picture is changing—rapidly. It is no longer possible for therapists to treat only the patient's condition. They have to take into consideration not only his normal growth and development but his relationship to his family and his community.

No longer can any one profession do the job. All professions have to work together with understanding and cooperation, each recognizing the equal worth and value of the other.

During the past twenty years physical therapists in public health programs have accomplished a great deal. With new concepts they will accomplish much more in the future.

You can set up productive

PHYSICAL THERAPY RECRUITMENT TIE-INS

with your community's campaigns

Girl Scout Week **Jewish Youth Week**

Camp Fire Girls, Inc. (Birthday Week)
Theme: Together We Make Tomorrow

National Urban League (Vocational Opportunity Campaign)
Theme: The Future is Yours—Plan and Prepare

Use this check list to make sure that you are taking advantage of every opportunity to tie-in your recruitment program with your local drives. These suggestions are good possibilities for easily and effectively publicizing the career opportunities in physical therapy through the cooperation of the campaign chairmen in your community.

Window displays—Show your posters and literature with campaign material in stores (department stores, specialty shops, drug stores, hospital supply companies); community health and welfare agencies; and youth-service organizations.

Exhibits—Set up bulletin board- and table-exhibits in schools; libraries (public and school); adult education centers; health centers; hospitals and clinics; conventions; civic and government agencies; YMCA, YWCA, YMHA, YWHA; Girl Scouts, 4-H, etc. clubrooms; men's fraternal and civic clubs; women's clubs (lounges, libraries, and lobbies); PTA meeting rooms; church recreational centers; and railway, bus and airline terminals.

Distribution of literature—Have your recruitment brochures distributed with the local campaign materials (mailings and handouts at meetings).

Newspaper publicity—daily and weekly, including county newspapers.

Local Advertising—plugs in retail ads (space donated by advertisers), or your own recruitment ads sponsored and paid for by a local group of civic leaders.

Be alert for publicity tie-ins every day—wherever you are. The possibilities for getting recruitment help through tie-ins with your community's March of Dimes and your community's health agencies' drives are unlimited.

Methyl Salicylate Packs in the Treatment of Poliomyelitis

O. Donald Chrisman, M.D., Arthur E. Mittnacht, M.D., Lucille B. Hood, B.S., Louise J. Browne, M.N. and Patricia H. Newton

The control of pain in acute poliomyelitis continues to be a distressing therapeutic problem. Some of this pain is neuritic in origin and may result from the meningitis present; more of it is muscular, and these myalgic aches and tightnesses have been treated by a variety of measures (Bendz). Wet and dry heat, massage, stretching and oral analgesics are in common use. (Kendall and Kendall). Hot wet packs, first described in this illness by Bradford, were popular in our hospital for many years, despite certain disadvantages. It was difficult to provide a lasting hyperemia with hot packs unless they were changed frequently, thus requiring extra personnel and equipment as well as frequent manipulation of tender extremities. The danger of burns, the increased heat and humidity in the rooms, a child's fear of steam, the bulkiness and weight of the bandages (especially undesirable in respirator cases), and the clutter and care of the equipment must be mentioned as drawbacks. In an epidemic, proper application of the packs became impractical without lay volunteers. For the past three years, we have changed to a methyl salicylate pack in all our cases with gratifying results.

Materials and Methods

Our pack consists of an elastic transparent rolled bandage 2 yards long and 3 inches wide, made by reacting methyl salicylate with plastic resins and waxes to form an elastomer called *Polyestol*® which can be wrapped around an extremity or folded back and forth into a wide pad to cover most of the back and neck, and held in place with elastic bandages or a binder. The bandages supply heat through the rubefacient action of methyl salicylate, and also elastic support and splinting. The skin absorbs a sufficient amount of salicylate to produce a measurable internal anelgesic effect, but no dangerous plasma levels or other undesirable side effects have been encountered (Blain). The bandages are simple to apply and can be easily cleaned with cold soapy water and stored in a cool place.

Intermittent application is best at the onset of therapy since excessive heat or a burning sensation may otherwise occur. Most symptomatic regions were treated, though we have not often treated the anterior chest or abdomen, feeling that respiratory freedom should not be impaired. The bandages were used from two to ten hours a day, usually beginning with three or four and increasing to ten over the course of two or three days. In our series of 50 cases treated over the past three years, the age of the patient has been an important factor in the duration of application. Children under 6 years were comfortable and quiet if the bandages were put on for two to three hours and removed for a similar period before reuse. From age 6 to age 12, three to five hours were tolerated twice a day with a break of three to five hours. For children over 12, a single application of up to ten hours proved feasible after the first day or two. Excessive perspiration increases the counterirritative effect, requiring the interposition of a thin layer of absorbent paper tissue between the bandage and the skin. The simplicity of their use makes these packs extremely valuable in respirator cases, for whom avoidance of fatigue and handling is paramount. After two or three days, a satisfactory individual regime can be decided upon and continued for one to three weeks.

Results

Relief of muscle pain and tightness is so subjective a matter that there cannot be a proper scale with which to compare this modality with others previously used. Seven cooperative young adults with moderate degree of paralysis were treated alternately with hot wet packs and methyl salicylate bandages. Without exception, they preferred the latter. Since both treatments tended to relieve the symptoms, perhaps the ease of ap-

264 Elm Street, Northampton, Massachusetts

plication and less frequent manipulation of sore limbs were the determining factors. No instance of dermatitis, allergy, or other unfavorable reaction was encountered.

From the viewpoint of the hospital personnel, the new packs proved to be a godsend in the 1955 epidemic. Time studies here and elsewhere show that hot wet packs, even of simplified nature require about two to three personnel hours per patient per day whereas methyl salicylate bandage packs required only one-half to one (Cogland). They required, therefore, less than half the time to look after, as compared with the hot packs, and the nurse or other attendant is freed for other duties.

CONCLUSION

A new and effective method of treating muscle pain and tightness in acute poliomyelitis using a methyl salicylate pack has been presented. It affords an appreciable saving of personnel time and greatly simplifies nursing care.

REFERENCES

1. Bendz, Per: Pain associated with acute poliomyelitis: neurologic and therapeutic considerations. Am. J. Dis. Child. 88: 141-147, 1954.
2. Blain, H. R.: Polyestol Bandage. Report filed with the Federal Security Agency, Food and Drug Division, Aug. 24, 1949.
3. Bradford, E. H. et al.: Methods of treatment in infantile paralysis. Boston M. and S. J. 162: 881, 1910.
4. Cogland, S. M.: Director, Physical Therapy, Boston Childrens Hospital, personal communication.
5. Doing, A. E.: The drop pack for moist heat. Phys. Ther. Rev. 30: 677-679, July 1950.
6. Kendall, H. O. and F. P. Kendall: Orthopedic and physiotheraputic objectives in poliomyelitis treatment. Physiother. Rev. 27: 159-165, 1947.
7. Krusen, E. M. et al: Effects of hot packs on peripheral circulation. Arch. Phys. Med. 31: 145-50, 1950.
8. Rackow, L. L. and Z Taylor: A modification of the standard wet pack, Phys. Ther. Rev. 31: 7, 265-6, 1951.

Pott's Paraplegia: A Case Study in Total Treatment

Frances Dunlap Alterman, M.A.

INTRODUCTION

Between December 1951 and December 1955, 15 patients with tuberculosis of the vertebrae were treated at Veterans Administration Hospital, Oteen, North Carolina. Five of these patients also had paraplegia. Four of the total group are currently under treatment in the surgical ward. One paraplegic left AWOL; the remainder have been discharged—treatment completed. This is a case study of a patient, selected from the paraplegia group, who demonstrated some of the problems as well as the successes that take place in severe and long term disabilities. Many people with particular skills have had a hand in this man's recovery. Above all, he demonstrated what the will to succeed means. He never gave up during the temporary setbacks that marked his course in the hospital. He represented the median in the group selected; that is, he neither progressed uncomplicatedly like the nonparaplegics nor did he regress like some who, despite the hand and brain of the hospital team, continue to have persistent recurrence of spinal lesion.

Chief, Physical Therapy, Veterans Administration Hospital, Oteen, North Carolina

A 33 year old male leather worker entered Oteen Hospital on Jan. 31, 1953, for the first time. He complained of pain in the upper back with episodes of coughing accompanied by fever and night sweats. Deformity of the dorsal spine was evident. This condition had persisted for the past year. After a thorough study, a diagnosis of tuberculosis with paravertebral abscess of the dorsal spine T-7 to T-12 was made. There was no evidence of pulmonary disease. He was placed on chemotherapy.

The man was ambulant when he entered the hospital but became completely paralyzed in the lower extremities in April, 1953. A left hemifusion from T-5 to L-1 was performed May 5, 1953. Presurgical physical therapy consisted of leg exercises in an effort to prevent atrophy of the muscles of the lower extremities.

On June 12, 1953, passive exercises in all ranges of motion were begun for joints of the lower extremities; no cast was applied to this

patient, therefore supine and sidelying exercises were possible. His course was not uncomplicated for the surgeons found it necessary to incise and drain his wound on Aug. 10, 1953. Meanwhile he had developed some spasticity. The first progress note written by the physical therapist on Sept. 10, 1953, indicated active motion was returning to both extremities. There was at this time, active but weak response in the flexors and extensors of the hips, knees, and ankles. No active abduction was perceptible and spasticity of the adductors hindered voluntary motion. Muscle reeducation continued within the limits permitted by the open draining wound at the fusion site. Typical of many paraplegics, he developed genito-urinary problems which necessitated a cystotomy with extraction of bladder calculi on Oct. 28, 1953.

Ultraviolet radiation was initiated in April, 1954, in an attempt to aid healing of the wound at fusion site. The wound was stubborn in healing and therefore the site was explored in the fall of that year.

By June 21, 1954, although he was still under daily treatment in physical therapy, he had made great progress. Coordination was still poor but all muscle groups had gained in strength; residual weakness remained in the left lower extremity as well as in the evertors and invertors of both ankles.

Thirteen months after the initial surgery, he was fitted with a Taylor spinal brace and permitted to ambulate in a walker for the first time. From then on he ambulated twice a day and continued muscle reeducation on the plinth. By Sept. 7, 1954, all muscles of the right lower extremity had reached functional level except the hip abductors. All muscles of the left lower extremity were at functional level except hip extensors, abductors, and knee flexors. With his quadriceps he was able to lift 12 pounds, and he could climb and descend stairs by using two canes. He had gained weight and looked well.

Nov. 18, 1954, he walked, without supervision by the physical therapist, on level surface and on stairs. His coordination had improved but he still executed all motions slowly. He continued to wear the brace and his habitual stance was—trunk forward with a marked lumbar lordosis. The abdominal muscles remained weak and his left knee tended to buckle occasionally. At this time he had enjoyed at least one visit home without complications. On Feb. 14, 1955, he began walking with one cane and developed better balance and strength. Coordination continued to improve though mild clonus was still present. Again he was confined to bed for a short period while another incision near the fusion site was made for lateral drainage. In due time the wound healed completely.

About the middle of March, 1955, the orthopedic consultant recommended that the patient discard the brace. As endurance increased so did the exercise period and he was given activities which were more difficult to perform such as mounting and descending stairs with one cane. In May he appeared before the board for transfer to the Swannanoa Division for continued treatment in the Rehabilitation Center. He was opposed to further hospitalization because of family problems but when it was pointed out that he needed to explore vocational possibilities as well as continue his physical convalescence, he accepted the program.

His activities at Swannanoa increased immediately for here he walked to the mess hall; at Oteen his meals had been served at bedside. Physical therapy was continued and obstacle walking was added to his regime. By this time all exercises were of the progressive resistive type. Late in July, 1955, two years and three months from the time he was first seen in the physical therapy department, he had complete or nearly complete function of his lower extremities except for left gluteus maximus, medius, tensor fascia lata, soleus and toe flexors which were 50 per cent functional.

He decided to work in the shoe repair shop, a clinic in manual arts therapy. By Sept. 30, 1955, he was actively working in clinics and shops five hours a day. Because his formal education had been limited to two grades in school, he was placed in basic reading classes in educational therapy where he made good progress. The vocational counseling service learned that after World War II he had taken a 12 month course in cabinet making under the G.I. Bill, and vocational evaluation of the patient showed superior dexterity scores. During the long months that he was bedridden, he had taken advantage of the opportunities offered in occupational therapy. His intelligence quotient on Wechsler-Bellevue Intelligence was: verbal—97, performance—112, and full—105.

He was discharged Dec. 2, 1955, with an eight hour work tolerance. He planned to work as a shoe repairman.

COMMENTS

Many patients do not need the extensive program which we related here. Definitive measures of short duration may be all that is necessary.

What we become more aware of, however, is that large sections of our population now, and will in the future, need what we like to call "total rehabilitation." Our story implies, and in fact shows, that the job is not done until the man is able to make his way outside the hospital. Wherever a patient is found who must make a radical adjustment in his type of work or way of life to remain independent, to provide for himself and perhaps for others, there is a challenge. Failing the philosophy—a more useful life for all—we accept the philosophy of the dole, an unbelievably heavy burden for everyone. For each patient the problem is different, the goal is different .... but there is always a goal! The constant factor is our enlightened conception of the part we play in modern medicine and surgery, and in physical medicine and rehabilitation.

Grateful acknowledgment is extended to T. Okano, staff surgeon, for his help in preparing this paper.

Suggestions from the Field

Mechanical Substitute for Deficient Hip Flexors and Quadriceps

Samuel Shep Barish, B.S.

This device consists of a leather cuff attached below the knee joint at the proximal portion of the tibia—securely laced to prevent slippage. The prongs of an inverted Y elastic belt are attached to the anterior portion of the cuff and extend upward over a protective knee pad. The prongs converge at approximately one-third of the distal portion of the femur. The elastic stem of the Y continues upward and is attached to a belt at a point slightly medial to the anterior superior iliac spine. A sliding clip adjusts the tension of the elastic belt. This is best accomplished with the patient in the sitting position. Tension is adjusted for sitting comfort; when the patient stands, the angle of pull increases sufficiently to provide assistance in knee extension and hip flexion.

Some practice is required for effective coordination and may best be accomplished between parallel bars or with crutches. The illustrations show that the upper portion of the inverted Y elastic is attached to a modified Taylor back brace; however, an ordinary waist leather belt may also serve as an anchor point.

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Index to Current Literature

ADMINISTRATION

Job Analysis—What and Why. Vi Morlan, Am. J. Nursing, 56: 1285-1287, October 1956

Backdrop to Planning. Julia C. Fauber, Am. J. Nursing, 56: 1268-1270, October 1956

AMPUTEE

Twenty-Year Follow-up in Fifty Below-Knee Amputations for Gangrene in Diabetics. Beverly C. Smith, Surg., Gynec. & Obst., 103: 625-630, November 1956

ANATOMY

Mechanism of Pelvic Support in Women. Howard Ulfelder, Am. J. Obst. & Gynec., 72: 856-864, October 1956

ARTHRITIS

Diagnosis and Management of Osteoarthritis. Joseph L. Hollander, Cincinnati J. Med., 37: 413-418, November 1956

Pathologic Changes in Gout. L. Lichtenstein, H. W. Scott and M. H. Levin, Am. J. Path., 32: 871-896, September-October 1956

BODY TEMPERATURE

Clinical Importance of the Physiology of Temperature Regulation. A. C. Burton, Canad. M. A. J., 75: 715-719, Nov. 1, 1956

BURNS

A Comparison of Local and Systemic Effects Following Contact and Flash Burns. James W. Brooks, et al, Ann. Surg., 144: 768-777, October 1956

CEREBRAL PALSY

A Classification of Cerebral Palsy. W. L. Minear, Pediatrics, 18: 841-852, November 1956

CIRCULATION

Venous Oxygen Saturation and Blood Flow During Re-Active Hyperaemia in the Human Forearm. T. A. McNeill, J. Physiol., 134: 195-201, October 1956

Relationship of Body Weight to Acute Myocardial Infarction. K. T. Lee and W. A. Thomas, Am. Heart J., 52: 581-591, October 1956

Constant Cardiac Pain: Treatment by Cutaneous and Myofascial Anesthesia. H. I. Weiser, Brit. J. Phys. Med., 19: 226-231, October 1956

Occlusion of a Coronary Artery. B. Halpert, E. E. Erickson and F. Gyorkey, Arch. Path., 62: 391-398, November 1956

Mechanical Impedance of the Dog's Hind Leg to Pulsatile Blood Flow. J. E. Randall and R. W. Stacy, Am. J. Physiol., 187: 94-99, October 1956

Health Habits and Heart Disease—Challenge in Preventive Medicine. E. P. Luongo, J.A.M.A., 162: 1021-1023, Nov. 10, 1956

Mitral Stenosis and Pulmonary Arteriosclerosis. W. A. Thomas, et al, Arch. Path., 62: 257-261, October 1956

Pathogenesis of Vascular Disease. L. L. Waters, Yale J. Biol. & Med., 29: 9-22, September 1956

Anatomy and Physiology of Ventricular Function. Robert F. Rushmer, Physiol. Rev., 36: 400-425, July 1956

Blood Coagulation, With Particular Reference to the Early Stages. R. G. MacFarlane, Physiol. Rev., 36: 479-502, October 1956

COLD

Impairment of Manual Dexterity in the Cold. J. S. LeBlanc, J. Appl. Physiol., 9: 62-64, July 1956

COLLAGEN DISEASES

Therapy of the Collagen Diseases. Irving H. Leopold, Arch. Ophth., 56: 577-586, October 1956

Evolution of the Collagen Diseases. René Contardo, Arch. Opth., 56: 568-576, October 1956

Differential Diagnosis of Collagen Diseases. Jack S. Guyton, Arch. Path., 56: 563-567, October 1956

General Manifestations and Symptoms of Collagen Diseases. Frank H. Constantine, Arch. Ophth., 56: 544-547, October 1956

Pathology of Diffuse Collagen Diseases. Lorenz E. Zimmerman, Arch. Ophth., 56: 548-556, October 1956

ELECTROTHERAPY

Improved Galvanic Methods of Treating Verruca and the Phytoses. Harold H. Cross, Brit. J. Phys. Med., 19: 224-226, October 1956

ENDOCRINOLOGY

Bone Metabolism and Bone Resorption After Parathyroid Extract. Daniel M. Laskin and Milton B. Engel, Arch. Path., 62: 296-302, October 1956

Hormones in Human Reproduction. Part I. Metabolism of Progesterone. M. E. Davis, E. J. Plotz, G. V. LeRoy, R. G. Gould and H. Werbin, Am. J. Obst. & Gynec., 72: 740-755, October 1956

GERIATRICS

Retraining the Disabled Older Person for Purposeful Living. G. Gullickson and F. J. Kottke, Geriatrics, 11: 477-483, November 1956

Rehabilitative Technics Adapted to the Severely Disabled Patient. Lewis A. Leavitt, Geriatrics, 11: 484-487, November 1956

Relief of Nocturnal Leg Cramps—Stroke Prevention? W. H. Lane, J. Am. Geriatrics Soc., 4: 1031-1032, October 1956

HEMIPLEGIA

Acute Spontaneous Cerebral Vascular Accidents in Young Normotensive Adults. B. E. Sprofkin and H. H. Blakey, Arch. Int. Med., 96: 617-630, November 1956

MULTIPLE SCLEROSIS

Cerebrospinal Fluid Thrombocyte-Agglutinating Substance in Multiple Sclerosis. Ib Persson, Arch. Neurol. & Psychiat., 76: 343-354, October 1956

MUSCLE

An Experimental Study of the "Laws" of Muscle and Tendon Growth. Ralph D. Comer, Anat. Rec., 125: 665-682, August 1956

Necrosis and Regeneration of Skeletal Muscles in Cortisone-Treated Rabbits. John T. Ellis. Am. J. Path., 32: 993-1014, September-October 1956

Mechanical and Chemical Events in Muscle Contraction. F. Buchtal, O. Svensmark and P. Rosenfalck, Physiol. Rev., 36: 503-537, October 1956

MYASTHENIA GRAVIS

Myasthenia Gravis with Features Resembling Muscular Dystrophy. L. P. Rowland and A. N. Eskenazi, Neurology, 6: 667-671, September 1956

NEUROLOGY

Guillian-Barré Syndrome and Presumed Allergic Purpura. L. M. Sanghui and R. Sharma, Arch. Neurol. & Psychiat., 76: 497-499, November 1956

Sydenham's Chorea—A Clinicopathologic Study. H. S. Colony and N. Malamud, Neurology, 6: 672-676, September 1956

Survey of One Hundred Cases of Whiplash Injury After Settlement of Litigation. Nicholas Gotten, J.A.M.A., 162: 865-867, Oct. 27, 1956

Characteristics of Postural Tremor in Normal and Various Abnormal States. Walter J. Friedlander, Neurology, 6: 716-724, October 1956

NEUROPHYSIOLOGY

A Study of Localization in the Cortico-spinal Tracks of Monkey and Rat. J. W. Barnard and C. W. Woolsey, J. Comp. Neurol., 105: 25-50, August 1956

Nerve Fiber Components of Communicating Rami and Sympathetic Roots in Man. A. Kuntz, H. H. Hoffman and M. W. Jacobs, Anat. Rec., 126: 29-42, September 1956

Ultrasonically Produced Changes in the Blood-Brain Barrier. L. Bakay, T. F. Hueter, H. T. Ballantine, and D. Sosa, Arch. Neurol. & Psychiat., 76: 457-467, November 1956

Localization of the Phrenic Nucleus in the Spinal Cord of Man. N. H. Keswani and W. H. Hollinshead, Anat. Rec., 125: 683-700, August 1956

Circulatory Reflexes in Chronic Disease of the Afferent Nervous System. E. P. Sharpey-Schafer, J. Physiol., 134: 1-10, October 1956

Natural History of the Nerve Impulse. George H. Bishop, Physiol. Rev., 36: 376-399, July 1956

Regeneration in the Mammalian Peripheral Nervous System. Lloyd Guth, Physiol. Rev., 36: 441-478, October 1956

Regeneration of Axons in the Vertebrate Central Nervous System. William F. Windle, Physiol. Rev., 36: 427-440, October 1956

Study of the Early Changes Occurring in Degenerating Myelin. M. Wolman, Neurology, 6: 636-639, September 1956

Conditioned Reflexes Established to Electrical Stimulation of Cat Cerebral Cortex. R. L. Doty, L. T. Rutledge and R. M. Larsen, J. Neurophysiol., 19: 401-415, September 1956

ORTHOPEDICS

Epiphysiolysis. J. A. Johnson, G. Manson and C. L. Mitchell, Am. J. Dis. Child., 92: 337-346, October 1956

Fragile Bones and Macrocranium. H. Bakwin and M. S. Eiger, J. Pediat., 49: 558-564, November 1956

So-Called Spastic Flatfoot. Robert W. Newman, Postgrad. Med., 20: 468-482, November 1956

Congenital Dysplasia and Dislocation of the Hips. W. A. Craig, M. L. Hamra, I. McDermott and E. Nicholson, Am. J. Nursing, 56: 1274-1280, October 1956

Fractures of the Anterior-Superior Beak of the Os Calcis. Wallace Green, New York State J. Med., 56: 3515-3517, Nov. 15, 1956

Referred Pain from Low Back Ligament Disability. George S. Hackett, Arch. Surg., 73: 878-883, November 1956

Diagnosis and Localization of Herniated Intervertebral Disks. George Zervopoulos, Neurology, 6: 754, October 1956

Dating the Onset of Dupuytrens' Contracture. John J. Moorhead, Am. J. Surg., 92: 571-572, October 1956

Fracture of the Spine. M. Beckett Howorth, Am. J. Surg., 92: 573-593, October 1956

PARAPLEGIA

Transplantation of the Spinal Cord for the Relief of Paraplegia. J. Grafton Love, Arch. Surg., 73: 757-763, November 1956

Paraplegia Following General Anesthesia. J. W. Ditzler and G. McIver, Anesth. & Analg., 35: 501-506, September-October 1956

PARKINSONISM

Therapeutic Exercises in Management of Paralysis Agitans. D. J. Erickson, E. C. Clark, D. W. Mulder, C. S. MacCarty and B. G. Clements, J.A.M.A., 162: 1041-1043, Nov. 10, 1956

POLIOMYELITIS

Immunization of Children by the Feeding of Living Attenuated Type I and Type II Poliomyelitis Virus and the Intramuscular Injection of Immune Serum Globulin. H. Koprowski, et al., Am. J. M. Sc., 232: 378-389, October 1956

Requirements for Persistent Immunity to Poliomyelitis. Jonas E. Salk, Am. J. M. Sc., 232: 369-377, October 1956

Fetal Poliomyelitis. G. B. Elliott and J. E. McAllister, Am. J. Obst. & Gynec., 72: 896-902, October 1956

Poliomyelitis Vaccine in California. R. L. Magoffin, California Med., 85: 79-86, August 1956

PHYSICAL FITNESS

Prevention of Injury in Athletics. Augustus Thorndike, J.A.M.A., 162: 1126-1131, Nov. 17, 1956

Relationship of Physical Fitness to Athletic Performance and Sports. T. K. Cureton, J.A.M.A., 162: 1139-1149, Nov. 17, 1956

Human Physical Fitness with Special Reference to Sex and Age. P. O. Astrand, Physiol. Rev., 36: 307-335, July 1956

Effect of Warming-Up Upon Physical Performance. P. V. Karpovich and C. J. Hale, J.A.M.A., 162: 1117-1119, Nov. 17, 1956

A Medical History of Gymnastics. A. J. Ryan, J.A.M.A., 162: 1112-1116, Nov. 17, 1956

Physical Fitness for All. R. J. H. Kiphuth, J.A.M.A., 162: 1116-1117, Nov. 17, 1956

PSYCHOLOGY AND PSYCHIATRY

Relationship Between Excessive Cigarette Smoking and Psychological Tension. M. Lawton and R. W. Phillips, Am. J. M. Sc., 232: 397-402, October 1956

Malingering: "Diagnosis" or Social Condemnation? Thomas S. Szasz, Arch. Neurol. & Psychiat., 76: 432-443, October 1956

Rest and Restriction: Their Conflict with an Adolescent's Development. J. Roswell Gallagher, Am. J. Pub. Health, 46: 1424-1428, November 1956

REHABILITATION

Aspects of Rehabilitation of the Aged. M. B. Ferderber, J.A.M.A., 162: 1036-1038, Nov. 10, 1956

Rehabilitation of the Chronically Ill in the Veterans Administration. A. B. C. Knudson, J.A.M.A., 162: 1035-1036, Nov. 10, 1956

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Editorial

Payments to Yourself

The career of a physical therapist is devoted overwhelmingly to interest in and care of other people. This characteristic of helping the less fortunate is innate and so dominant in the every day working period that it may absorb the therapist's total time and energy. The satisfaction which comes when the patient is relieved of pain, the child walks for the first time, or the adult goes back to take his place in the community is enormously gratifying to the physical therapist. Of equal importance are the personal benefits one derives in having the opportunity to plan for a life of continued independence. Since this path will never be traveled again, it might be well to consider the present in terms of the future.

At the expense of being repetitious, people are living longer. Statistics collected by government agencies and insurance companies show that the population of persons age 65 and over is steadily increasing. In 1950 there were approximately 12 million people in this group. If the trend continues as it has in the past, there will be 22 million people over age 65 by 1980. A physical therapist 41 years or older today may very likely be one of these 22 million people in 24 years. Out of 100 women at age 65, 86 will live to be 70, 69 will live to be 75, and 49 will reach 80. The number of men alive at each age is slightly less.

As in any job or profession the ability for productive work declines with age; the physical activities of yesteryear cannot be done with the same ease and skill. The stresses and strains of an eight hour work day are more fatiguing as age increases. Productivity is reduced yet the person may have 10, 15, or 20 years of professional life remaining. This has been demonstrated by figures published by the American Bankers Association. Out of 100 men starting on their life's work at age 25, 50 will still be self supporting 30 years later. Of the remaining 50, 20 will have died and 30 will be partly or totally dependent. With the recent advances in medical knowledge the number of deaths in this period is decreasing. The greatest tragedy is that of the 30 men who at 55 are dependent on society.

To plan for the future, part of every day lived should be lived for yourself, part of everything earned should be paid to yourself.

Time paid to yourself through creative projects or self improvement activities will pay both current and future dividends. Advanced

education opens the door for less physically demanding positions in teaching or administration where one can capitalize on the vast clinical experience obtained earlier. Spare time interests unrelated to the profession, which can be initiated during the salaried years may be developed into an income producing occupation later. The companionship of friends, hobbies, and community activities are vital to mental alertness and happiness. This is doubly important when work is no longer the primary interest in life.

Money invested in yourself will multiply and increase in value with age. This should include savings for sickness or accidents, and independence in the later years. In 1951 only 50 per cent of the people were covered by medical care insurance of any kind. With aging, illness is more prevalent. The longer a person waits before starting a health insurance plan the higher are the rates. Some "group" coverage may not be effective after retirement, nor can it be converted from group to individual insurance at that time. A knowledge of this is important before it is too late.

More and more hospitals and institutions are introducing retirement plans for their employees. The maximum income attainable from this means is inadequate for the average person's needs. Those who have Social Security realize income from three sources, their own contributions, their employers', and the Federal Government's. Social Security for the self-employed physical therapist presents a quite different problem. It has been recommended by people who assist with financial planning, that those who have Social Security should check their accounts with the Federal government at least every three years. This Federal Act is complicated but should be understood by those who are eligible to receive the benefits.

Other means of insuring an income are through insurance policies which pay dividends at regular intervals, stocks, bonds, pensions, and various types of investments. Real estate is considered a saving but the possibility of a single woman securing such is extremely difficult after the age of 40. Every wage earning physical therapist should have a definite financial plan for the present to insure the rewards of the future.

Age 50, 60, or 65 is not a time when one closes the door on one type of life and starts to "do all the things he has planned to do." The advancing years of life may be rich or poor, happy or unhappy, depending on whether the payments to yourself in time and money have been well spent and well placed throughout the earlier years.

"You cannot bring about prosperity by discouraging thrift. You cannot strengthen the weak by weakening the strong. You cannot help the wage earner by pulling down the wage payer. You cannot further the brotherhood of man by encouraging class hatred. You cannot help the poor by destroying the rich. You cannot establish sound security on borrowed money. You cannot keep out of trouble by spending more than you earn. You cannot build character and courage by taking away man's initiative and independence. You cannot help men permanently by doing for them what they could and should do for themselves." Attributed to Abraham Lincoln

Association News

OVR Grant to the APTA—Spring Institute

The American Physical Therapy Association has been awarded a short-term training grant by the Office of Vocational Rehabilitation, U. S. Department of Health, Education, and Welfare, and will conduct a five-day institute on the "Correlation of Physics and Physiology with Electrotherapeutic and Testing Procedures." It will be held at the Extension Study Center at the University of Oklahoma, Norman, Oklahoma, from April 8 to 12, 1957, primarily for instructors of physics, physiology, or electrotherapy in the schools of physical therapy.

Three members of the Advisory Committee on Professional Education serve as the Institute Committee: Dorothy Billenstien, chairman, Helen Kaiser, and Agnes Snyder. This group discussed tentative plans in October 1956 and since then has polled the instructors for choices of topics, desired contents, and suggestions for faculty. Attendance will be limited to 50; grants are available for travel costs; participants are expected to pay for other expenses.

Member Author of Article

Major Beatrice Whitcomb, AMSC, and former Associate Editor of the *Physical Therapy Review*, is the author of "An Abstract of Principles of Supervision" published in the November-December 1956 issue of the *Americal Journal of Occupational Therapy*.

Consultant's Position Open

A position as Consultant of the American Physical Therapy Association, Department of Professional Services under the direction of Lucy Blair, is now open. Members of the Association who have a minimum of five years experience in the practice of physical therapy and participation in Chapter and Association activities are invited to apply to the Executive Director who will furnish details regarding the position.

Chapter Department Bulletin

At least three times a year chapter presidents and district chairmen receive a bulletin from the Chapter Department of the Association. This bulletin has several purposes as follows:

1. To give guidance and information to chapter and district officers in matters of organization so that we may work toward coordinating our activities.
2. To report to the members on the progress of Association projects.
3. To suggest ways in which national projects can be implemented at the chapter level.

The Bulletin is an important link in the system of communication from the Board of Directors and the National Office to chapters and districts. Since it is addressed to chapter presidents and district chairmen, it is important that all information contained in it be channeled to the proper chairmen and their committees so that the chain of communication remains unbroken.

In addition: the chain becomes complete only if the information is made available to all members. Such dispersal informs members of some of the mechanics by which the widely diffused links of our association are tied together.

To reinforce the chain, members should familiarize themselves with the Bulletin, which should be made available at chapter and district meetings. Since the number of members who could read the Bulletin at any one meeting is limited, pertinent excerpts may be reprinted in the chapter newsletter. Inclusion in the newsletter would show how the elements of our Association make effective contributions to the whole.

At chapter and district meetings items from the most recent Bulletin could be reported by a chapter member. The executive committee could then report on what was being done regarding the suggestions or requests contained and discuss the balance of work to be done by chapter members and/or committees.

Communication implies an interchange of thoughts. Continuity and effectiveness are revealed by placing the National Office on the newsletter mailing list and through correspondence from chapters and members. By such a

process, the National Office becomes aware of local activities and problems; in turn, future bulletins may become more helpful to the entire membership.

As a member, keep yourself informed of the work of your professional organization by familiarizing yourself with the content of these bulletins which come to your chapter.

KATHERINE V. CHILCOTE, *Member*
Advisory Committee on Chapter Activities

Chapter News

Greater New York District Plans Educational Institute

The Greater New York District of the American Physical Therapy Association announces its annual Educational Institute. We are proud to welcome such speakers as Dr. Frank Reynolds, Albany, New York; Dr. Max Newman, Detroit, Michigan; Dr. Leo Dobrin, Dr. Michael Dacso, Dr. Morton Hoberman, Dr. Allan Russek, and Dr. Shailer Lawton of New York City. Many well known therapists are participating.

Subject:

"Geriatric Rehabilitation"

Place:

New York Coliseum—South American Room
20 West 60 Street
New York City

Dates and Time:

March 7, 1957	
Thursday Evening Session	7:30 P.M. — 10:00 P.M.
March 8, 1957	
Friday Evening Session	7:30 P.M. — 10:00 P.M.
March 9, 1957	
Saturday Morning Session	10:00 A.M. — 12:30 P.M.
Saturday Afternoon Session	2:00 P.M. — 4:30 P.M.

Price for APTA Members: All Sessions $7.00
Per Session 2.00

Advanced Registration—deduct $1.00 (Before March 1, 1957). Registration forms are being sent to New York chapters and surrounding state chapters. Register now and make a note of the dates of the meetings.

Checks payable to—Greater New York District of the American Physical Therapy Association.
Mail registration to:

Miss Rosann Borinstein, Chairman
135 East 50 Street
New York 22, N. Y.

Connecticut

An excerpt of the report of Connecticut's Chief Delegate to the Second Congress of the World Confederation for Physical Therapy, Prudence Kuhrt, printed in the October *Nutmeg News*, reads:

> "As a member of the APTA you may well be proud of your organization for the excellent participation it had in this conference. It is only by attending our annual conventions that you begin to feel that you are part of an organization that is growing rapidly in recognition and influence both in the professional as well as the non-professional realm . . ."

The December *Nutmeg News* includes reports on four lectures given at chapter meetings. Several of the reports were prepared by University of Connecticut students and others by graduate physical therapists.

Massachusetts

A 15-page newsletter, fall issue, was dedicated as the Presidential Issue in honor of the Massachusetts Chapter members who have served as president of the APTA and of the World Confederation for Physical Therapy. Reports of seven committees, Western District, post-Congress news, new appointments, personal news, news from the Massachusetts schools of physical therapy, and a reproduction of the 1955-56 statistical report of the Association income and expenses made up the body of the newsletter.

Michigan Chapter, Eastern District

In order to facilitate members' transportation to meetings, the District has established a car pool plan. Selected captains will assist members in their areas to "hitch a ride."

The Eastern District has been earning a portion of the Detroit conference expenses through the sale of stationery at meetings. The November newsletter reports $186.00 earned in this manner.

Ohio Chapter

The *Ohio Physioscope*, fall issue, lists the officers and committee chairmen of the Chapter and the five Ohio Districts. Each District contributed one page of news items about members, facilities, and the scientific programs to be presented in the various districts.

Oregon—Southern District

A combined directory-program for the year lists the names of seven members as participants on the 1956-1957 program.

San Diego Chapter

The December newsletter presented a review of Chapter programs for 1956 and a preview for 1957. The comments of several delegates and members attending the Second Congress of the World Confederation for Physical Therapy were included and eight new chapter members were introduced through the newsletter.

Texas

The Texas Chapter has recently formed four new districts making a total of seven. The names are Central, Coastal Bend, Heart of Texas, North, Southeastern, Southwestern, and Western.

Texas—Southeast District

A project designed to stimulate writing of scientific papers has been developed by Southeastern District. Papers will be referred to an editorial board composed of district members who will give guidance to aspiring contributors to professional journals.

Vermont

Chapter members are participating in a series of educational TV programs designed to teach good posture and body mechanics. One program presented proper technics for managing the baby; a second program was centered on sitting posture; and a third will present "Good Posture in The Sick Room."

Washington

"APTA in Retrospect—a Narrative" was presented at the January meeting of the Washington Chapter. The program and banquet were reminiscent of thirty years ago when there were seven chapters in the APTA, and the Washington Chapter was composed of nine members. Elsie Childs, Emily Griffin, Marguerite Irvine and Karen Rynning were honored as charter members of the Washington Chapter or as charter and Life members of the APTA.

Chapter funds have been supplemented by a Showboat theater party in October which netted the Chapter $112.00. The project will be repeated in February. Other projects for fund-raising in anticipation of the 1958 conference in Seattle have been sales of magazine subscriptions, cards and gift wrappings, and "Tupper Ware parties" held in several members' homes.

Marriages

Evangeline Caviani, of Gonzales, Tex., now Mrs. Evangeline C. Craig, Gonzales.

Yvonne Edwards, of Oakland, Calif., now Mrs. Yvonne E. Sherman, Oakland.

Barbara Erkert, of Chicago, Ill., to John E. Cooperrider, Chicago.

Barbara Gerlach, of Milwaukee, Wis., now Mrs. Barbara G. Gergen, Milwaukee.

Rosemary Longo, of Millis, Mass., to John C. Hurley, Jr., Columbus, Ga.

Katharine M. Matthews, of New York, N.Y., to George E. Shambaugh, New York.

Betty McElroy, of West Haverstraw, N. Y., to Raymond S. Wilck, Jr., Woodbridge, N. J.

Charlotte McIntire, of Phoenix, Ariz., to M. J. Mirkin, Phoenix.

Alice Quinn, of Quantico, Va., now Mrs. Alice Q. Steele, Arlington, Va.

Florence F. Smith, of Columbus, Ohio, to D. A. Hutchinson, Myrtle Grove, Fla.

Summer Program for the Master's Degree in Physical Therapy at Stanford University

Last year the Division of Physical Therapy at Stanford University instituted a plan whereby the graduate program that it offered during the school year may also be completed during three eight-week summer sessions. Physical therapy courses which will be offered next summer will feature the following: (1) analysis of various treatment technics currently used in central nervous system disorders, and (2) exercise treatment of common orthopedic disabilities, with a review of related anatomical considerations based on prosected laboratory material.

The total graduate program also includes advanced work in anatomy, kinesiology, and therapeutic exercise, seminars in administration and thesis problems, courses in educational testing and evaluation, and the use of visual aids. Additional courses in education and counseling are available and students may include projects in their program that may be completed during the year.

Vocational Interest Study

Dr. Edward K. Strong, Jr., Director of Vocational Interest Research at Stanford University, Stanford, California, has devoted many years to the study of interests of men and women. He has developed Interest Blanks which measure the extent to which an individual's interests are similar to those of persons in a given occupation. These forms are widely used by guidance counselors in the United States. He has also developed profile sheets, one to be used for male and the other for female students. They contain lists of all occupations investigated and an easily interpreted "profile" for each; i. e., the characteristic group of interests held by persons in each occupation. The comparison of the test results with the profile sheet gives the basis for advising students towards or away from certain occupational or professional training in that it points out work areas in which satisfactions will be found. The fields most nearly related to physical therapy which are now on the profile sheets are social work, psychology, dietetics, physical education, occupational therapy, nursing, and laboratory technology.

Plans have been made with Dr. Strong for a study of the interests of physical therapists. In order to obtain the necessary data, 600 male and 600 female physical therapists will be asked to fill in an Interest Blank. It is composed of 400 items related to occupations, amusements, school subjects, activities, abilities, and characteristics. The person indicates his interest in each by placing a mark in either the "like," "dislike," or "indifference" column; or shows his preference by using the symbols requested. These responses will be studied and from this material a scale will be set up and norms furnished on the interests of physical therapists. The scale will then be added as another profession to the profile sheet.

Subsequently, with physical therapy appearing on the profile sheet among the other vocations, a counselor will know if a student's interests are similar to those characteristically held by physical therapists and will be able to advise him accordingly. This type of interest test can serve as a recruitment tool and also as a screening device. It can be used effectively with a younger age group than the battery of tests developed by the New York University Testing and Advisement Center and will supplement the information which they furnish. It will in no way supplant this battery for it is valuable for the purposes for which it was developed.

It is desired to have this project completed at an early date. A manual designed for vocational guidance counselors describing the education and opportunities for physical therapy is currently in use, and a physical therapy profile would give the counselors further information about their students and added support in their advice to them. Due to the foregoing, if you are invited to fill in an Interest Blank, will you please comply. Except for all officers, names of members are being selected at random from the chapter and district rosters.

For more detailed information concerning the Strong Vocational Interest Blank, your attention is called to *Vocational Interests of Men and Women* by Dr. Strong, Stanford University Press, 1943; and to *Educating Physical Therapists to Meet the Challenge of the Future* by Dr. Frances A. Hellebrandt, Stipes Publishing Company, Champaign, Illinois, 1953, pages 23-29. (Out of Print)

New Student Members

Grady Vaughn School

Walter Crum	Ronald Masitis
Joe C. Finnell	William H. Pettey
Mary I. Hanna	Bill Puryeer
Robert Harden	Nibby T. L. Reeder
Earl P. Hatfield	Tommie Ryland
Shirley Hathorn	Charles L. Smith
Ellsworth Kingery	Frank Sommers

New York University

Barbara C. Mayer	Sister Elizabeth M. O'Carm.

Stanford University

Marilyn K. Silvernale

University of Connecticut

Elizabeth Blackman	Elaine T. Johnson
Madeleine Caron	Constance Kenes
Suzanne Chaffee	Carolyn Klapproth
Marion Coan	Gretchen A. Landauer
Nicholas Daddona	Lillian Michel
True Diener	Mary Myrick
Mary Fernald	Elaine Schissler
Anne Guetersloh	Margaret Sime
Jenanne Hall	Anthony Subach
Velvys M. Heskiss	Barbara Tindall
Judith E. Holbrook	Beverly D. Williams

University of Pennsylvania

Sondra L. Gildenberg

University of Southern California

Joan E. Peer

CONFERENCE 1957

Living—Through Growing, Learning, and Doing

The APTA annual conference will be held at the Hotel Statler, Detroit, Michigan, June 23 to 28, 1957. The highlight of the week will be the scientific program which will fill six half-day sessions. This year the Michigan Chapter chose to present the comprehensive medical care of the patient in terms of growth and development. Because we wished to emphasize the effects of recent advances on the current philosophy of the practical management of the patient, the theme selected was "Living—through Growing, Learning, and Doing." To include as much of this extensive subject as possible a four day symposium will be presented. This will be divided into four different age groups. At each session doctors, therapists, and those in associated fields will discuss the individual with or without a disability.

At the opening session, the speaker will present the chief ingredients which are necessary to mold the form for living in the present day environment. The needs of the child represent the foundation for growth into adolescence which continues through education for the career years and on to the rewards offered in the mature years.

On the first day of the symposium, the discussion will be concerned with the child. The first paper will be devoted to the growth and development of a normal child. This will be the base line for a comparison of the material presented by subsequent speakers. The pediatrician, orthopedist, and physical therapist will discuss both the effects of an acquired disability and the general philosophy fundamental to the treatment at various age levels.

The problems of the adolescent who is being educated for the career years will be discussed at the second session. Again the opening paper will summarize the physical and psycho-emotional trends of the adolescent. With the exception of the discussion of the neurological basis of congenital brain lesions, the remainder of this session will be focused on the problems associated with a congenital disability as contrasted to those of the child with an early acquired handicap.

The first speaker of the third session will present the work philosophy of the employment years. This includes the trends of productivity, accident proneness, and plans for security. The anatomist, orthopedist, and physical therapist will discuss the functional anatomy of the trunk and the medical problems and the treatment of back conditions. A summary of vocational rehabilitation from the employee-employer aspects will complete this section.

The closing session will be concerned with the physiological and psychological adjustment to aging. The medical problems associated with geriatrics will be presented, followed by a realistic approach to physical therapy for the elderly patient. The importance of early financial planning to meet the needs of old age will be considered. The concluding paper will summarize what the mature years have to offer.

Original Papers

The time has come to finish that paper you wish to present at the Conference in Detroit on Thursday afternoon, June 27, 1957. We know that there are many physical therapists with new material at their fingertips, ready to share it with others in this field. Send the title of your paper—*now*—to

Marcia Shaw
28721 Jefferson Ave.
St. Clair Shores, Mich.

Abstracts of the papers will be due April 1.

Michigan, the Water Wonderland

Michigan, shaped like a mitten by her surrounding lakes, holds out her hand to welcome you in June, and suggests that Conference be preceded or followed by a vacation within her borders. Stretched out in two great peninsulas, each almost surrounded by waters of the Great Lakes, Michigan has variety to offer the vacationist.

A motorcade through Michigan from Detroit would head north, through the "Thumb" and on up the shores of Lake Huron to Mackinaw City and the Straits of Mackinac. A ferry trip across the Straits will give a ringside seat to view the nearly completed Mackinac Bridge, which will be the world's longest suspension bridge; its total length, with approaches, will be 26,195 feet. Ribbon-cutting ceremonies are scheduled for about Nov. 1, 1957.

Our next stop should be the famous Soo Locks, at Sault Ste. Marie where, during an average eight months' season, more freight tonnage passes than the combined tonnage which passes through the Panama and Suez canals in one year. Here, on the St. Mary's River, you're certain to enjoy an almost constant parade of large lake boats plying to and from Hiawatha's "Big Sea Water."

The Upper Peninsula is a land of forests, waterfalls, and lakes. There are over 150 waterfalls here, Tahquamenon being the largest. It was of this river that Longfellow wrote in his poem, Hiawatha.

A trip to the Keweenaw Peninsula, Michigan's

famous copper country, brings one to the 'end of the road'—or a boat to Isle Royale National Park with its wildernesses. To go to Ironwood and the iron country in the western part of the Upper Peninsula one travels as far as if he had driven to Washington or New York City.

A return to the Lower Peninsula and a drive along the shores of Lake Michigan with glimpses of its miles of beautiful sandy beaches, takes us past famous sand dunes. Dunemobiles give never-to-be-forgotten rides over the "moving sky lines." State parks are many with excellent camping facilities. Roadside picnic tables invite us to rest awhile on our return drive to Detroit.

Michigan has chosen well its motto:

Si quaeris Peninsulam Amoenam Cercumspice
If you seek a beautiful peninsula, look about you.

Final Plans Announced for Rehabilitation Center Planning Institute

An Institute on Rehabilitation Center Planning will be held at the Morrison Hotel in Chicago from February 25 to March 1, 1957, according to an announcement from the Conference of Rehabilitation Centers, Inc., sponsors of the program. The Institute, which is open to all persons interested in the establishment, operation or expansion of comprehensive rehabilitation facilities, is being conducted under a training grant from the Office of Vocational Rehabilitation, U. S. Department of Health, Education, and Welfare.

The keynote address on February 25 will be delivered by Dean W. Roberts, M.D., director of the National Society for Crippled Children and Adults, on the topic, "The Evolution of the Rehabilitation Center as a Social Force." Mary E. Switzer, Director, Office of Vocational Rehabilitation, will close the proceedings on March 1, with an address on "The Forward Look in Sound Planning for the Rehabilitation Center."

Other featured speakers include Henry Kessler, M.D., founder and director of the Kessler Institute for Rehabilitation; E. B. Whitten, executive director, National Rehabilitation Association; and Donald A Covalt, M.D., associate director, New York University-Bellevue Medical Center Institute of Rehabilitation and Physical Medicine.

Among the major subjects to receive detailed consideration by Institute participants are (1) determination of community need for a center; (2) mobilization of area support for the center; (3) definition of a feasible program of center services; (4) conversion of the program into action; (5) operation of the center; (6) community relationships; and (7) evaluation of center services.

Advance registrations are now being accepted by the Division of Special Projects, Conference of Rehabilitation Centers, Inc., 5 Franklin Avenue, Saranac Lake, N. Y. Copies of the program and registration forms are available upon written request. Early registration is encouraged by Institute officials who state that present indications point to a capacity enrollment prior to the opening in Chicago. Admission to all sessions will be limited to persons holding registration cards, and to specially invited guests.

Birtcher Medical Foundation Aids School of Physical Therapy

Los Angeles Childrens Hospital School of Physical Therapy would have closed its doors last fall except for a grant of $10,000 from the Birtcher Medical Foundation, according to J. E. Smits, the Hospital Administrator.

Public announcement of the closing of the School had already been made when Mr. C. J. Birtcher proffered the necessary support to meet the operating deficit for another year. As a result, a full class of 15 students was enrolled in September.

In making the grant, Mr. Birtcher expressed the hope that it would give Childrens Hospital the opportunity to reorganize the School on a sound financial basis. Mr. Smits reports that efforts are being made to develop a University affiliation that would insure the perpetuation of the School.

Childrens Hospital School of Physical Therapy has graduated 402 therapists in the past 32 years and the alumni have been greatly concerned over the prospect of its closing. The Hospital management is hopeful that a way will be found to save the School and perpetuate the fine traditions it has established.

Physical Therapy Programs

APPROVED BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

Schools offering the four year program leading to a baccalaureate degree accept high school graduates and transfer students. Schools offering the 12 to 16 months' program leading to a certificate accept students who have completed all or most of their undergraduate work providing they meet certain course requirements. Recipients of a degree and/or certificate have equal professional status. For specific information regarding each school's entrance requirements, tuition, and other fees, write to the physical therapy director indicated below. All students should investigate course requirements *early*.

	Degree	*Certificate*
CALIFORNIA		
Mary J. Dodge School of Physical Therapy Childrens Hospital Society 4614 Sunset Boulevard Los Angeles 27	‡	†
R. William Berdan School of Physical Therapy College of Medical Evangelists 312 N. Boyle Avenue Los Angeles 33	†	†
Lucille Daniels Division of Physical Therapy Stanford University Stanford (Palo Alto)	†	†
Margery L. Wagner Curriculum in Physical Therapy University of California The Medical Center San Francisco 22	†	†
Charlotte W. Anderson Department of Physical Therapy University of Southern California University Park Los Angeles 7	†	†
COLORADO		
Dorothy Hoag Curriculum in Physical Therapy University of Colorado Medical School Denver 20	†	†
CONNECTICUT		
Frances Tappan School of Physical Therapy U 101 University of Connecticut Storrs	†	
ILLINOIS		
Elizabeth C. Wood Course in Physical Therapy Northwestern University Medical School 303 East Chicago Avenue Chicago 11	†	†
IOWA		
Olive C. Farr Physical Therapy State University of Iowa Hospitals Iowa City		†
KANSAS		
Ruth G. Monteith Section of Physical Therapy University of Kansas Medical Center Kansas City 12	†	†
LOUISIANA		
Isadore Brown, Acting School of Physical Therapy Charity Hospital of Louisiana New Orleans 12		†
MASSACHUSETTS		
Adelaide L. McGarrett Physical Therapy Department Boston University Sargent College 6 Everett Street Cambridge 38	†	†
Constance K. Greene Department of Physical Therapy *Bouve-Boston School, Tufts University Medford 55	†	
Shirley M. Cogland *Program in Physical Therapy Simmons College-Children's Hospital 300 Longwood Avenue Boston 15	†	†
MICHIGAN		
Virginia Wilson Curriculum in Physical Therapy University of Michigan University Hospital Ann Arbor	†	†
MINNESOTA		
Darrell D. Hunt School of Physical Therapy Mayo Clinic Rochester		†
Ruby M. Overmann Course in Physical Therapy University of Minnesota 860 Mayo Memorial Hospital Minneapolis 14	†	

* Accepts women students only.

‡ Baccalaureate degree available from an affiliating college or university.

	Degree	Certificate
MISSOURI		
Sr. M. Imelda, S.S.M. Department of Physical Therapy St. Louis University 1325 South Grand Boulevard St. Louis 4	†	
Beatrice F. Schulz Department of Physical Therapy Washington University School of Medicine 660 So. Kingshighway St. Louis 10	†	
NEW YORK		
Dorothy L. McLaughlin *School of Physical Therapy Albany Hospital-Russell Sage College New Scotland Avenue Albany 8	†	†
Mary E. Callahan Courses for Physical Therapists Columbia University College of Physicians & Surgeons 630 West 168th Street New York 32	†	†
Elizabeth C. Addoms Physical Therapy Curriculum School of Education, New York University Washington Square East New York 3	†	†
Mildred F. Heap Program in Physical Therapy University of Buffalo 2183 Main Street Buffalo 14	†	†
NORTH CAROLINA		
Helen Kaiser Division of Physical Therapy Box 3403, Duke Hospital Durham		†
OHIO		
Robert D. Kruse Course in Physical Therapy Frank E. Bunts Educational Institute 2020 East 93rd Street Cleveland 6		†
Gladys G. Woods School of Physical Therapy Ohio State University University Hospital Columbus	†	†
OKLAHOMA		
Thelma Pedersen School of Physical Therapy University of Oklahoma, Medical Center Oklahoma City 4	†	†
PENNSYLVANIA		
Dorothy E. Baethke Division of Physical Therapy University of Pennsylvania 205 S. 34th Street Philadelphia 4	†	†
Kathryn Kelley Curriculum in Physical Therapy D. T. Watson School of Physiatrics Leetsdale	‡	†
PUERTO RICO		
(All classes given in Spanish) Lutgarda Vega School of Physical & Occupational Therapy Professional Bldg., 8th Floor Stop 22, Santurce		†
TEXAS		
Doris E. Porter Grady Vaughn School of Physical Therapy Baylor University Hospital Dallas 1	†	†
Cecelia J. Lee School of Physical Therapy Hermann Hospital Houston 25		†
Ruby Decker School of Physical Therapy The University of Texas Medical Branch Galveston	†	†
VIRGINIA		
Susanne Hirt School of Physical Therapy Medical College of Virginia Richmond 19	†	
WISCONSIN		
Beth J. Phillips Curriculum in Physical Therapy Marquette University School of Medicine 561 North 15th Street Milwaukee 3	†	
Margaret Kohli Course in Physical Therapy University of Wisconsin Madison 6	†	†
U. S. ARMY MEDICAL SERVICE		
*Physical Therapy Course Army Medical Service School Brooke Army Medical Center Fort Sam Houston, Texas Write to: The Surgeon General Department of the Army Washington 25, D. C. Att.: Personnel Division		†

* Accepts women students only.

‡ Baccalaureate degree available from an affiliating college or university.

Please direct all inquiries regarding tuition, entrance requirements and other specific information to the school and *not* to the American Physical Therapy Association.

Abstracts

The Output Impedance of Constant-Voltage Diagnostic Stimulators.

W. G. S. Stephens (St. Salvator's College, University of St. Andrews, Edinburgh, Scotland), BRIT. J. PHYS. MED., 19: 217-223, October 1956

This is the first of a series of articles by the author on the fundamental facts of the passage of electric current through living human tissue. The purpose of this paper is to examine the influence of output impedance of a stimulator on the actual waveforms and on the shape of the intensity-duration curve for normal muscle. These factors are important in constant-voltage stimulation as used for diagnostic purposes according to Ritchie. Constant-voltage stimulation requires, by definition, that the electrodes be raised instantly to a certain voltage, maintained at this voltage for a stated duration, and instantly discharged. Since living tissue behaves electrically like an imperfect condenser, it is necessary that the output circuit have a very low electrical resistance, otherwise the charging and discharging of the tissues will be impeded and the electrode voltage waveform will depart from the required rectangular form.

First of all, a distinction is made between the output impedance during the rise of the stimulus and during the decay of the stimulus. In this paper Rp is used to denote the output impedance during the rise of the stimulus or during the "pulse," and Rq is used to denote the output impedance during the decay of the stimulus or during the "quiescent" period. If Rp and Rq are of low resistance, the voltage waveform will be rectangular in form and the current waveform will show a high initial surge and a surge in the reverse direction. If Rp is high the initial charging of tissues is impeded and the electrode voltage may be considerably less than the open-circuit voltage. If Rq is high the decay of the stimulus is retarded, the duration of the pulse is lengthened, and the surge in the reverse direction is abolished. If both Rp and Rq are high, the shape, duration, and amplitude of pulses actually produced at the electrodes are quite different from those intended and will affect the physiological response. A stimulator was used in which Rp and Rq could be varied. This apparatus is described in detail. Waveforms were recorded by using a double-beam oscilloscope with a camera. Waveforms and intensity-duration curves were recorded for a range of values of Rp and Rq.

The results of these records show that a true constant-voltage stimulator must have a value of Rp less than 100 ohms and a value of Rq less than a few hundred ohms. With increasing values of Rq the effective duration of the pulse will increase and therefore the intensity-duration curves will be depressed at short durations. With increasing values of Rp the voltage becomes less than intended values, and the intensity-duration curves, therefore, will have an exaggerated rise at all durations. It is shown that both of these values exert a significant influence on electrode voltage and current waveforms, and on the intensity-duration curve recorded from normal human muscle.

Basic Electrical Principles in Physical Medicine.

Anthony E. Ritchie (University of St. Andrews, Edinburgh, Scotland), BRIT. J. PHYS. MED., 19: 232, October 1956

Anthony Ritchie is Professor of Physiology at the University of St. Andrews. He has written this article to introduce a series of articles by W. G. S. Stephens on the fundamental facts of the passage of electric current through living human tissue. The first of the series appears in the October 1956 issue of the *British Journal of Physical Medicine.*

Ritchie states that the development of electrical methods of diagnosis and treatment in physical medicine has been largely empirical, depending more on clinical trial and judgment than on fundamental research. In order to undertake such fundamental research, the worker or team of workers must possess knowledge in major fields of applied science. First, they must know the physiology and pharmacology of nerve, muscle and skin, and the many technics for investigating these complex and delicate living tissues. Second, they must be grounded in a knowledge of electrical theory with all the accompanying instrumentation and mathematics involved. And third, they must have constant access to and guidance from experience in physical medicine, whereby the appreciation of clinical difficulties and pathological problems can be kept in mind.

The continual anxiety to know why and how procedures work has led to the initiation of this research whose object is to link as far as possible the trained laboratory physicist to the practitioner of physical medicine. The work is being done by a research engineer in a university department with the facilities of physiological and pharmacological advice and technic, and in collaboration with clinical material and experience. The project is designed to channel knowledge from science and medicine into the investigation of basic facts and the establishment of sound procedures in electrical methods of diagnosis and treatment.

Therapeutic Aspects of Pulmonary Emphysema.

A. H. Russakoff (Department of Medicine, Medical College of Alabama, Birmingham), DIS. OF CHEST, 30: 412-417, October 1956

Some of the important physiological derangements in severe pulmonary emphysema are reviewed. These include diminished effective alveolar ventilation, lowered arterial oxygen saturation, alveolo-capillary block, anxiety which commonly increases the degree of pre-existing bronchospasm, and fever which increases the requirements for oxygen and the work of breathing. The cumulative effect of these defects frequently results in complications involving the cardiovascular system.

At this point, the author applies some of these principles to the medical management of the emphysema patient. The abuse of sedatives, narcotics, and oxygen therapy is emphasized. A positive approach to therapy is presented: bronchodilators, secretory expectorants, detergents, antimicrobial therapy, steroid therapy, venesection, radio-active iodine, pressure breathing, breathing exercises, and pneumoperitoneum.

Intermittent positive pressure breathing should be combined with bronchodilator aerosols. It is felt that positive pressure breathing should be incorporated with exsufflation and high negative expiratory pressure. Diaphragmatic breathing exercises may be helpful in improving pulmonary ventilation. Apparently, patients learn the technic easier if they are tilted slightly in the head-down position with a sand bag applied to the abdomen. The

objective of pneumoperitoneum is to introduce only sufficient air to permit the diaphragm to enter again into the mechanical ventilatory process.

A Discussion on Postural Re-education.

Basil Kiernander, PROC. ROY. SOC. MED., 49: 667-670, September 1956

It is essential first of all to define the term "good posture" and to know the factors that are necessary for the maintenance of posture. A review of definitions is presented in this paper. The factors which influence posture are also discussed. Mechanical defects adversely affect the maintenance of correct posture. These vary from congenital defects, through a variety of conditions, to a multiplicity of acquired mechanical defects due to pathological processes. Mechanical causes from outside the body, such as tight clothing and ill-fitting shoes, may produce comparable postural defects. The second, and perhaps the most important factor, is the psychological one. The general health of the patient plays an important part in the maintenance of posture. Also, postural defects often arise as a result of faulty habits; even excessive participation in one particular sport may predispose to postural errors.

Postural defects may be divided into static and dynamic. The static defects consist of those observable when the patient is in a resting position. The dynamic postural errors consist of those observable in function.

The treatment of both types consists of making the person aware of his errors, and training him in voluntary correction. Remedial exercises can be started from the day after birth, and the earlier correct treatment of postural defects is instituted, the more effective and rapid will be the results. Treatment of infants is based on reflex action. From the age of 12 or 18 months, play movements are employed and when a child reaches the age of 4 years or so, it is possible to take advantage of his intelligent cooperation.

The reports of various studies on the incidence of postural defects and the results of treatment disclose some interesting facts. Less than 5 per cent of postural defects could not be improved by training, and nine times as many children improved with postural training than without. Organized games have only a limited value and tend only to help those already well developed. Deterioration in posture tends to occur after leaving school, especially in those persons who do not participate in any form of active physical exercise or postural training. In summary then, the measures required in treatment are to make the person proud of his correct posture and keen to take an active part in sports and games and to stimulate him to have the right psychological outlook on life.

Brain Changes in Electroshock Therapy.

Leo Madow (Jefferson Medical College, Philadelphia, Pa.), AM. J. PSYCHIAT., 113: 337-347, October 1956

Electroshock therapy which produces convulsive seizures was introduced in 1938 for the treatment of certain psychiatric illnesses. Since then it has been used rather extensively. It is considered to be safe, with a mortality rate of 0.1 per cent.

Several previous investigators have made autopsy studies of the brains of humans and animals who had received electroshock. The material in both the animal and human studies varies. Generally speaking, reversible brain changes noncontributory to death have been reported in the animal studies. Of the 38 humans reported to have died following electroshock, about 40 per cent of the deaths were probably due to cerebral complications. These deaths ranged from immediately following the treatment to 5 months after receiving electroshock therapy.

The purpose of this paper is to describe the clinical and autopsy reports of 4 patients who died following electroshock therapy. Three patients died within 24 hours of treatment and the fourth 36 days after the last shock therapy.

In the 4 cases there were significant vascular changes in the brain, ranging from widely scattered petechial hemorrhages to a massive intraventricular hemorrhage in one case. Three of the 4 patients had heart disease and probably died of cardiac failure. Two patients developed hemiplegia before death.

The fact that neuropathological changes occur in fatalities following electroshock does not necessarily mean that similar findings occur in all patients. If the patient is physically healthy the neuropathological changes are mostly reversible. On the other hand, if the patient has cardiac, vascular, or renal disease, the cerebral changes, which are mostly vascular, may be permanent and could contribute to the cause of the patient's death.

Hazards in the Treatment of Acute Myocardial Infarction.

Henry I. Russek, (Consultant in Cardiovascular Research, United States Public Health Service Hospital, Staten Island, N. Y.), AM. J. M. SC., 232: 403-411, October 1956

There is a prevailing tendency today to overtreat patients with acute myocardial infarction. It is accepted procedure in many quarters to employ routine methods for all cases of this disease. While many components of routine programs are extremely worthwhile, the author pleads that overtreatment arising from the application of routine programs should be discouraged. It is the physician's responsibility to be as aware of the hazards as of the values of modern therapy; therefore, the hazards in the treatment of acute myocardial infarction are discussed according to the drug or method of treatment.

Of particular interest are the discussions on bed rest and the so-called "chair" treatment. Prolonged bed rest is often unnecessary and may be harmful. It has been shown that recumbency tends to increase cardiac work by increasing the circulating blood volume. Prolonged bed rest is frequently responsible for generalized loss of muscular and vascular tone, constipation, and predisposition to venous thrombosis. It often has given rise to anxiety and prolonged psychoneurosis. The "chair" treatment of Levine obviates some of these and permits easier commode privileges; however, the use of "chair" treatment routinely from the onset of the attack must be questioned. Account must be taken of the amount of strain that may be involved for the patient while he is being lifted or helped into a chair then back to bed. The hypotensive effect of the opiates when the head is elevated and the feet are dependent must also be considered.

Dependency of the legs with the patient seated in the chair may predispose to thrombotic complications rather than prevent them. It has also been noted that a tendency exists for patients nursed in this manner to

take too light a view of their illness and to disregard protective restrictions. Therefore, the length of time in bed and the time for instituting "chair" treatment and ambulation can only be decided intelligently on an individual basis.

Progressive Changes in Ventilation Following Pulmonary Resection.

David V. Pecora, (Ray Brook State Tuberculosis Hospital, Ray Brook, N. Y.) SURG., GYNEC. AND OBST., 103: 445-458, October 1956

This paper reports on a further study of ventilatory changes following pulmonary resection. There has been a lack of agreement regarding the degree of correlation between the amount of tissue resected and the resultant changes in ventilation. The present investigation was undertaken to study this problem further.

Timed and total vital capacity measurements were employed. It has been shown that timed vital capacity correlates well with maximum breathing capacity, and that vital capacity provides a sensitive measure of the ventilatory changes which follow surgery. The patients were fluoroscoped at frequent intervals and X rays were taken as indicated.

The results show that there is a severe decrease in ventilatory function immediately following surgery. A marked decrease in the mobility of the diaphragm and chest wall on the operated side is evident. Occasionally, paradoxical motion is noted in the diaphragm. Undoubtedly pain plays a role, but the limitation of motion persists after the patient ceases to feel pain. "Stiffness" on the affected side persists. Breathing exercises and patient cooperation seem important in keeping these changes to a minimum. Restricted ventilation during the early postoperative period may allow the diaphragm to become adherent in an elevated position or the lung to become encased in a fibrous envelope which may permanently prevent full expansion. These factors are sometimes referred to as "thoracotomy effect." From this study the amount of lung tissue resected seems to be of minor importance. This may be due to the fact that the diseased tissue is resected and the ventilating lung is preserved. In comparison, the ventilatory defect of plombage thoracoplasty seems dependent upon the volume of collapse. It is interesting to note that the function in the early postoperative period is much better than following resection. This fact may be dependent upon the absence of traumatic pleurisy which occurs following thoracotomy. On the other hand, postresection thoracoplasty and phrenic paralysis seem to decrease ventilation further.

It is also noted that surgery had no appreciable effect upon timed vital capacity; therefore, it must be assumed that the changes following surgery are purely restrictive and that there is no obstructive element.

Clinical Features of Aseptic Meningitis Caused by Coxsackie-B Virus.

D. L. McLeod, et al., (Hospital for Sick Children, Toronto, Canada), LANCET, 6945: 701-703, Oct. 6, 1956

Aseptic meningitis may be caused by many etiological agents. Some of the more common viral agents are poliomyelitis, Coxsackie-B, mumps, herpes-simplex, and "orphan" viruses. Until the particular symptoms of the various diseases are present, the differential diagnosis based on clinical factors is not possible.

At the Hospital for Sick Children, Toronto, between 1950 and 1955, 17 cases of aseptic meningitis caused by Coxsackie-B virus were studied. These 17 cases were part of a series of 96 cases diagnosed as "non-paralytic poliomyelitis." In the group which ranged from 4 to 11 years, there were 8 males and 9 females.

The clinical signs common to these patients with Coxsackie-B virus meningitis were similar to other acute viral conditions. Pyrexia, nausea, headache, and drowsiness were usually accompanied at some time by epigastric pains and muscle tenderness. No paralysis or tremor was present. The clinical laboratory findings, although abnormal, were not significant to Coxsackie-B virus. The white cell count was moderately raised. Cells were in the cerebrospinal fluid.

Therefore, only by tedious and time-consuming isolation of the Coxsackie-B virus could a definite diagnosis as to the type of meningitis be made. The viruses in these 17 cases were isolated either from the cerebrospinal fluid or from stool specimens.

It is anticipated that with improved viral laboratory procedures, the etiological agent causing the aseptic viral meningitis may be more readily identified.

A Critical Examination of Methods of Postural Re-education.

Wilfred Barlow (Department of Physical Medicine, Wembley Hospital, Charing Cross Hospital Group, London, England), PROC. ROY. SOC. MED., 49: 670-674, September 1956

The results of a survey on posture are presented. From these results the point is established that whatever methods of educating posture are used in the schools, the end-result even in the best of students is not good. This leads to a critical evaluation of these methods.

The idea that a healthy, natural, outdoor life with plenty of good food and exercise will insure a reasonably good posture is not always true. Even if it were true, the main problem still would be how to establish a posture which will stand up to the strain of living in a civilization in which the healthy life may not easily be available. The methods of postural education and reeducation employed in the past have not proved successful. Too much reliance has been placed on verbal or pictorial instruction and the actual postural ability and its associated awareness has been tackled by exercise. Optimistically it has been hoped that people can "do what they are told," and that a little more will power and "trying" is all that is required. Words and ideas will become effective only when they are accompanied by demonstration of the sensory experiences to which they refer. Such experience will not be given by an exercise, as it is understood at present, but will be learned after a period of conditioning in which the new model (verbal or otherwise) is associated with the appropriate degree of muscle tension, not only at rest but in preparation for movement. In this way the subject learns a basic resting state of postural equilibrium which he can employ at will. Such a method of reeducating posture was outlined in an atricle by the author, "Psychosomatic Problems in Postural Re-education," which appeared in *Lancet*, Sept. 24, 1955.

The author turns next to a consideration of methods presently used by many physical medicine departments. Perhaps the most common method used by physical therapists is a combination of exercise and "static" holding. Such methods must be considered from the point of view of whether they increase postural awareness. The muscle spindle mechanism, which mediates much of our postural sense, is put out of action

by excessive muscular contraction. There seems to be fairly clear agreement now that postural feed-back from the muscle is more effective when a muscle lengthens than when it shortens. Therefore it is difficult to see how the "holding" and overcontraction of muscle can help to promote postural awareness. The "strength" to maintain adequate postural relationships at rest and during movement does not come from muscle shortening and overcontraction, but from maintaining a correct equilibrium between various parts of the body. To attain this equilibrium, the patient needs to be taught to release superfluous muscular tension and return to a resting state in which the muscles are lengthening.

An Evaluation of the Effects of Cerebral Palsy on Dentofacial Development, Especially Occlusion of the Teeth.

Don C. Lyons (420 W. Michigan Avenue, Jackson, Mich.), J. PEDIAT., 49: 432-436, October 1956

Various factors may cause malocclusion of teeth: abnormal osseous development of the facial bones, dental conditions, functional disharmonies, and abnormal facial-masticatory muscles. This paper is concerned with malocclusion in cerebral palsied patients who exhibit abnormal function of muscles of face and mastication.

Under study were 123 children with cerebral palsy and 157 children in a control group. All of the latter group had various congenital or acquired abnormalities other than cerebral palsy.

Eighty-four per cent of the cerebral palsied children had malocclusion, the degree of which was proportional to the degree of spasticity or physical abnormality present. In the remainder, which had average occlusion, the palsy was slight and limited primarily to the extremities. The cerebral palsied patient usually had abnormal swallowing in which the teeth were parted and the tongue in contact with resisting lips and cheek. Only 10 per cent of the control group had malocclusion. The cerebral palsied children in general also had poor teeth.

Abnormal muscle function in patients with cerebral palsy has a molding effect upon the positioning of the erupting teeth. Correction of malocclusion in these children is difficult. It is necessary to consider possible prevention by such means as medication to reduce spasticity during the period of teeth eruption. Good general dental care and the avoidance of teeth extraction also are important.

Movement in Diagnosis and Treatment.

Frances Baker, (San Matèo, Cal.), J.A.M.A., 162: 635-637, Oct. 13, 1956

Motion being the essence of life, man has made constant attempts to understand its basic mechanisms. The latest advances in cinematography and electromyography have enabled us to observe and measure motion under normal and pathological conditions.

Locomotion has been investigated in some detail, with analysis of motions in each of the three basic planes. Movement in the plane of progression is accompanied by characteristic and necessary motions in the frontal and horizontal planes. Elevation and depression of the pelvis and transverse rotation of the pelvis, femur, and tibia occur in all normal persons. The normal rhythm of gait is disturbed if any of these motions is blocked or limited. Muscles act at various stages of locomotion for acceleration, deceleration, and stabilization. This last group particularly requires considerable study to understand how the body maintains a state of equilibrium. A better understanding of motion in the normal person will lead to better diagnosis and treatment of pathological problems associated with the motor system.

Progress in physical medicine in recent years has led to more accurate diagnosis and more effective treatment of motor handicaps. In this regard it is important for the physiatrist to study the performance of the patient at regular intervals after treatment has been instituted as well as at the initial examination. The patient needs to gain confidence in his physician and also needs some understanding of his physical problem so that he can assist in the management of his disability. Each patient should have an exercise program geared to his own demands and levels of achievement. The doctor, utilizing his clinical sense or feel for motion, can modify the exercise so that it will be effective for any chosen case.

Physical medicine is a field in which the doctor needs to learn to work with his hands, so that "the variations in the reactions of his patients come to be felt as much as recognized by routine signs." He needs to be able to apply the movements of the body to obtain therapeutic results. Exercise is the fundamental means of achieving return and control of motion.

Neuromuscular Problems in Hemiplegic and Paraplegic Patients.

Lenox D. Baker (Duke University School of Medicine, Durham, N. C.), GERIATRICS 11: 434-439, October 1956

The rehabilitation of the patient disabled with a neuromuscular condition is usually a cooperative project which requires the services of the neurosurgeon, the orthopedist, the physical therapist and in many instances the urologist and plastic surgeon.

The orthopedic rehabilitation of these patients falls into two categories: restoration or improvement of ambulation and restoration or improvement of manual function.

Hand problems may be divided into three types: (1) deformities of the thumb, (2) deformities of the fingers, and (3) deformities of the wrist, any of which may be present alone or in combination with the others. There are several surgical procedures which may be of value but the patient must be selected with care and the procedure well planned. Undoubtedly surgical procedures are not as successful for this type of patient as they would be when used in those with disabilities for which the procedures were originally described.

The deformities seen in spastic lower extremities are more amenable to therapy and the results of surgery are far more predictable than that for the upper extremities. There is usually an equinus of the foot with a varus or valgus deviation, flexion of the knee, and internal rotation, adduction, and flexion of the hip.

Rehabilitation of a patient who has had a cerebrovascular accident should begin at the time of the accident and not after the deformities have developed. It is important to establish joint control, to obtain restoration of muscle balance, and to establish normal relationships to the line of gravity for upright balance.

The major foot deformity seen is the equinus, caused by spasticity of the calf muscles. This condition has been corrected successfully by

lengthening the gastrocnemius aponeurosis and dissecting the soleus fibers from the distal portion of the aponeurosis.

In flexion deformities of the knee, the gastrocnemius can be the chief offender or may play a part in combination with the hamstrings. When the gastrocnemius is involved, either a lengthening of the aponeurosis or a release of the origin of the muscle may be considered. Either procedure may be combined with lengthening or complete tenotomy of the hamstrings.

The deformities about the hip are both difficult to analyze and to correct. In the less involved extremity with mild internal rotation deformity, a Yount section of the fascia lata with a stripping of its intermuscular septum from the femur, combined with a partial neurectomy of the obturator nerve and a tenotomy of the adductor longus, will correct most of the deformity and allow for better function.

In the more severe cases, when flexion deformity remains after operation, myotomy of the origin of the rectus femoris and release of the insertion of the iliopsoas muscle may be necessary to gain further extension of the hip. This is especially true in spastic paraplegia resulting from spinal cord damage.

Anarthritic Rheumatoid Disease.
L. Bagratuni (Radcliff Infirmary, Oxford, England), LANCET, 6945: 694-697, Oct. 6, 1956

The term, anarthritic rheumatoid disease, applies to those cases which have the usual symptoms of rheumatoid arthritis except for the joint pathology; therefore, these patients represent the early stage of rheumatoid arthritis and should not be classified with rheumatic fever or other collagen diseases.

In this article seventeen cases are presented which showed no joint involvement. Four cases in which the joint involvement was minimal represent the link between the anarthritic form of the syndrome and true rheumatoid arthritis. The patients were middle-aged or elderly. The most characteristic features were generalized aching and stiffness of the muscles, especially of the neck, shoulders, and back; fever and sweating; loss of weight and general malaise. Laboratory studies indicated marked similarity between cases, particularly a very high erythrocyte-sedimentation rate, decreased hemoglobin, and normal white cell count. There was minimal or no radiological change in the joints to suggest active arthritis.

The patients were treated with salicylates and had fair therapeutic response. The illness may persist for months, but remissions are expected.

There are variants in the cases of anarthritic rheumatoid disease as there are in rheumatoid arthritis. However, all factors considered, such as age, clinical and laboratory features, and partial response to salicylates, this syndrome is most similar to true rheumatoid arthritis and should be treated in that light.

Evaluation of End-Results of Acute Anterior Poliomyelitis.

Robert L. Bennett (Georgia Warm Springs Foundation, Warm Springs, Ga.), J.A.M.A., 162: 851-854, Oct. 27, 1956

"The desired end-result in poliomyelitis is achieved when the patient has obtained or regained the highest possible degree of safe physical independence within the limitations imposed by factors over which there is no human control and the patient has made an intelligent adjustment to his residual handicap."

End-results can be evaluated when the patient is old enough in years and duration of disease to have had all necessary treatment. The following factors which effect recovery should be considered. (1) Site and extent of central nervous system involvement. The size of the area of destruction is important including the loss of segments in the spinal cord which may be the entire area of innervation for some muscles. Likewise the site of the lesion should be considered: lesions of a certain size in the cervical area will be more disabling than those of equal size in the thoracic or lumbar areas. (2) Adequacy of medical care. Adequate total care from the onset of the disease is necessary to minimize after effects. (3) Medical condition of the patient. Medical problems occurring concurrently or even years later than the initial attack may interfere with proper management of skeletal muscular involvement. (4) Age at onset. Psychologically each age group has its own problems related to residual involvement. In general, infants and small children present the greatest problem. In the course of growth muscular imbalance will produce deformities, and it is often difficult to keep the young child from developing abnormal patterns of motion. (5) Personality of patient, his family and community. The end-results are molded by all those who determine the adjustment of the patient to society, and not just by the physician and his co-workers. In long-term cases, it is the patient and his family who must accept most of the responsibility for continued care.

The end-results then can be judged according to whether the patient has obtained maximum safe and functional capacity within the limits imposed by these factors. More specifically the following can be considered: (1) Pattern of residual weakness. Patterns which are not characteristic of residual poliomyelitis or severe isolated muscle weakness are often the sign of poor treatment rather than initial neuron destruction. (2) Musculoskeletal deformities. The physician should try to anticipate and correct deformities as adequately as possible since they interfere with maximum function. (3) Apparatus. Where necessary for safe and maximum function, the use of apparatus should be encouraged. (4) Orthopedic surgery. Necessary surgery is a part of good overall care. Surgery should be well planned and timed to bring most effective results, and should not merely consist of correction of deformities which might have been avoided by more adequate care. (5) Specific functional training. The patient must be trained to gain skill in the use of apparatus and the performance of physical activities. (6) Patient's attitude toward his handicap. The total care program should be responsible for assisting the patient in adjusting to his handicap vocationally, socially, and recreationally.

Physiological Studies After Continuous Serpasil Therapy Over 18 Months.

Ernest J. Fogel (Veterans Administration Hospital, Leech Farm Road, Pittsburgh, Pa.), DIS. NERVE SYSTEM, 17: 322-323, October 1956

In May 1954, Serpasil was administered to 100 chronic cases of schizophrenia in a Pittsburgh Veterans Administration Hospital. This large group consisted of the most stereotyped and maladaptive behavior problems.

Dosage for the first six months

averaged 4 mgm. per day given orally. The more uncooperative patients received 5 to 15 mgm. parenteral Serpasil in conjunction with oral medication during the first few weeks of treatment. All cases were reevaluated after a six-month period, and most of the patients were put on a maintenance dose of 2 mgm. Serpasil daily. It was found that this form of chemotherapy was very effective in the control of behavior.

Serious side reactions were not encountered throughout the treatment period. Reactions noted, although not serious, were excessive salivation and lacrimation, occasional cases of rigidity with tremor, and several attacks of syncope. This last reaction occurred without evidence of other signs of physiological shock. It was noted, however, that these patients had received other shock therapies, thus giving some reason for these attacks.

A physiological evaluation of the effect of Serpasil was made. Twenty people comprised the group, with ages ranging from 35 to 54 years. These patients received only Serpasil for more than one year and were not treated with any other form of chemotherapy for the same period of time. Electrocardiographic studies showed no significant clinical changes. Abnormal responses were not produced with compression of the carotid sinus. Blood pressure, taken after 3 minutes of standing in the erect position, dropped within a very slight range. Serpasil did not cause enlargement of the liver or spleen and did not alter the normal swallowing reflex. There was no evidence of abnormalities of hemoglobin, red cell, white cell, differential, or platelet counts.

The results of these studies showed that this drug is relatively safe and can be used for prolonged administration among the more chronic continued psychotic patients.

A Practical Guide to the Management of Intermittent Claudication and the Prevention of Gangrene.

Stanford Wessler (Department of Medicine, Harvard Medical School, Boston, Mass.), POSTGRAD. MED., 20: 380-387, October 1956

A condition may be diagnosed as intermittent claudication when physical exertion produces pain or paresthesia in the foot, calf or thigh, promptly relieved by cessation of the activity without change of position of the affected part. It is now generally accepted that intermittent claudication results from muscular ischemia secondary to arterial occlusive disease when blood supply is inadequate for actively contracting muscle.

The author reviews the many facts about the syndrome, the patient's reaction to his disability, and the current therapy. He sums up the latter by stating that today there is no single effective measure for the treatment of intermittent claudication that has gained wide acceptance. He then follows with a detailed description of a concrete and positive program whereby every physician can effectively treat patients with intermittent claudication without recourse to intricate diagnostic or therapeutic technics. This program is discussed in four parts: (1) establishing the diagnosis, (2) determining the ancillary factors, (3) assessing the disability, and (4) walking program.

Of particular interest is the walking program. The patient is urged to walk to pain tolerance at least four times daily. Walking to pain tolerance provides the most physiologic stimulus yet devised for the development of a collateral circulation in those areas where it is most needed. Secondly, it offers the patient a specific program which is simple and completely safe. Third, walking to pain tolerance has a most salutary effect on that large group of patients who, prior to seeing a physician, voluntarily had limited their activity to avoid pain. Finally, the walking routine acquaints the patient with improvement as it develops; a blood count or an oscillometric reading is not needed to convince him that he is better. Therapeutic measures for preventing gangrene are discussed and instructions for good foot care are presented in detail. A program for the ambulation of the vascular amputee is outlined.

Abstractors for February

We are indebted to the following for assistance in preparing the abstracts for this issue:

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Judith Kurtz
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Book Reviews . . . . .

Physiotherapy in Paraplegia. *By Elvira P. G. Hobson, F.C.S.P., Superintendent Physiotherapist, King's College Hospital, London. Formerly Physiotherapist, National Spinal Injuries Centre, Stoke Mandeville, Aylesbury, Bucks. Superintendent Physiotherapist, The Star and Garter Home for Disabled Sailors, Soldiers and Airmen, Richmond, Surrey. Physical Therapist, Institute of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, New York. Foreword by L. Guttmann, O.B.E., M.D., M.R.C.P. (Lond.). Director of National Spinal Injuries Centre, Stokes Mandeville. Cloth; price 12s.6d. net. Pp. 110; illus. J. & A. Churchill Ltd., England, 1956.*

In the last ten years there has been a decided change in outlook and concept of treatment among those professionally concerned with the many problems of the paraplegic patient. Miss Hobson points out that this is due to the advances which have been made in all phases of treatment of the patient and the realization of what can be accomplished through a sound, concentrated, and positive therapeutic program.

The tangible evidence presented of what the author, as a physical therapist, and other members of the medical profession have accomplished in their work in England with the traumatic paraplegic should prove interesting and stimulating to all physical therapists and especially so to those persons in the profession particularly concerned with the individual problems of the paraplegic.

Miss Hobson's practical experience has been extensive in working with paraplegics, particularly those who have sustained spinal cord injuries as the result of accidents or gunshot wounds. The success of her work would seem to justify her interest in sharing with others the methods of treatment and programs which have been used to attain these ends.

Physiotherapy in Paraplegia is intended to serve as a guide book, presenting largely specific therapeutic methods used in the treatment of such conditions and the underlying principles substantiating these procedures. The author strikingly points out that "congregation rather than segregation" is an important factor in the successful rehabilitation of the paraplegic patient. Very early treatment and the shortest recumbency period possible is considered basic to optimum results. In addition to the emphasis placed

on the necessity of these early considerations in order to reduce the problems of vasomotor disturbance and to develop new postural sense for balance and control, interesting material is presented on the value of capitalizing on extensor spasm on standing. It is felt that bracing, often a controversial problem, should be kept to an absolute minimum for the paraplegic.

It is interesting to note that the use of mat work is not included in the progression of treatment as it is in the United States and Canada, while considerable use is made of the Guthrie-Smith suspension therapy and the Stoke-Mandeville Bed Cycle both of which are explained in detail.

Discussion is given to the values of organized sports and recreation for the rehabilitated paraplegic as well as existing problems of gainful employment in various countries.

The book is concise and descriptive with generous illustrations and interesting case studies. It presents methods and principles of treatment in a clear and well organized style. At the same time it reflects throughout the understanding and equal concern Miss Hobson has not only for the paraplegic's physical problems, but also the psychological reactions and readjustments imposed upon him by the severe impact of such an extensive problem.

Physiotherapy in Paraplegia should certainly inspire its readers with greater optimism for the future of the paraplegic.

The Give and Take in Hospitals. A Study of Human Organization. *By Temple Burling, M.D., Professor of Industrial and Labor Relations at Cornell University; Edith M. Lentz, Ph.D., faculty member School of Public Health, University of Minnesota; and Robert N. Wilson, Ph.D., Teacher, Writer and Lecturer of Sociology and Psychology. Cloth; price $4.75. Pp. 355. G. P. Putnam's Son, New York, 1956.*

This book is a report of a study initiated by the American Hospital Association and conducted by a team of skilled researchers from the New York State School of Industrial and Labor Relations of Cornell University.

The research upon which this report is based was made possible by the willing cooperation of a number of hospitals throughout the country and a grant of $50,000 solicited by the American Hospital Association.

The findings recorded here have given an unusual insight into how hospital occupations appear to individual technicians and workers in many hospital departments. As a highly readable report of interaction between administration and employee and, in turn, of the results of this interaction in terms of patient care, it documents the importance of sound employee motivation.

The author and his associates have contributed a highly significant work which should bring to the reader a greater understanding of the hospital and its many ramifications, as well as an appreciation of the responsibilities of the many people who enter into providing care to the patient. Their efforts should be especially useful for those who seek to define more clearly the way in which human resources are organized, how to improve their skills in dealing with existing tensions and pressures, and how to explore tactfully the internal and external disturbances affecting the people who perform hospital services.

Outline of Orthopaedics. *By John Crawford Adams, M.D. (London), F.R.C.S. (England). Consultant Orthopaedic Surgeon, St. Mary's Hospital, London, General Hospital, Brighton, and St. Vincent's Orthopaedic Hospital, Pinner; Assistant Editor,* Journal of Bone and Joint Surgery, *Cloth; Price $7.00. Pp. 411; illus. E & S Livingstone Ltd., Edinburg and London, and Williams & Wilkins, Baltimore, 1956.*

The author's purpose is to present a readable, compact outline of orthopedic surgery primarily to assist students studying for the qualifying examinations. Descriptions of operative technics are limited to the barest essentials, and fractures and recent injuries have been excluded.

The first chapter outlines the proper approach to diagnosis of an orthopedic problem and is followed by a general discussion of various types of operative and nonoperative treatment available.

Chapter two is devoted to a review of the field of orthopedics. Essential points in the pathology, clinical features, diagnosis, prognosis, and treatment of orthopedic disorders are clearly and concisely arranged.

The remaining chapters are devoted to eight anatomical areas starting with the neck and cervical spine and ending with the leg, ankle, and foot. Each section is introduced with valuable suggestions for examination of the part and a classification of disorders of the area. Further discussion of each entity includes notes on the cause, pathology, clinical features, differential diagnosis, radiological features, special tests, and treatment.

The organization of this book is excellent, though of necessity it leads to some duplication, and the style is clear and readable. There are a few statements with which we might take exception (i.e., muscle transplants in poliomyelitis are mostly used in the upper limb). But in general one is impressed with the similarity of the English and American approach to and treatment of orthopedic problems. The illustrations are well chosen and most helpful. It should prove a useful reference book for the physical therapist.

Treatment of Acute Poliomyelitis. *Edited by William A. Spencer, M.D., Medical Director, Southwestern Respiratory Center; Assistant Professor of Physiology and Pediatrics, Baylor University College of Medicine; and other contributors. Ed. 3. Paper; price $6.00. Pp. 212; illus. Charles C Thomas, Springfield, Illinois, 1956*

Treatment of Acute Poliomyelitis is the third edition of a syllabus sponsored by the National Foundation for Infantile Paralysis, Inc. and edited by Dr. William A. Spencer, Medical Director of the Southwestern Respiratory Center, based on six years of experience in the management of acute and chronic poliomyelitis. It was prepared as a teaching aid by the Departments of Pediatrics, Physiology, and Physical Medicine in cooperation with members of all the various medical disciplines to point out the necessity for comprehensive, individualized treatment of the poliomyelitis patient.

Part I covers the following topics: epidemiology and diagnosis of the disease; symptoms and general management of the acute and post-acute phases; symptoms of respiratory insufficiency and the use of artificial respiration; signs and treatment of swallowing impairment, including advantages and disadvantages of tracheotomy; use of humidified oxygen or air; cardiovascular and autonomic abnormalities; metabolic circulatory and pulmonary complication; water, electrolyte and caloric

needs; management of constipation; diet and tube feeding; urinary bladder retention; nursing care; pregnancy as a complicating factor; joint range of motion; social and emotional factors.

Part II deals with the post-acute and convalescent treatment of poliomyelitis pointing out that following the acute phase of the disease, treatment should be directed toward enabling each patient to attain the best possible useful function within his capabilities. Scheduling of activities must be carefully planned to attain a balance within the patient's tolerance. There is discussion of positioning and muscle testing; procedures used to increase muscle strength and coordination and to maintain joint range of motion; rate and extent of muscle recovery; assistive and supportive apparatus; considerations for orthopedic surgery; paralytic scoliosis; anesthesia for poliomyelitis patients; nephrolithiasis and metabolic problems; immobilization syndrome of the adolescent patient; methods for increasing the effectiveness of spontaneous breathing including breathing exercises and weaning from respiratory assistance; physical and occupational therapy progression; nursing care; signs and symptoms of stress; planning for discharge and home care of the respiratory patient.

Part III is the appendix and contains charts and information concerning equipment necessary for the tracheotomy tray and bronchoscopy table; the mechanics and the physiology of respiration as applied to the poliomyelitis patient; vital capacity and tidal volumes in children and adults; artificial respiration and the relative effectiveness of the respiratory devices; glossopharyngeal breathing; coughing with manual assistance and with vacuum cleaner assistance; maintenance and specifications of commonly used respiratory equipment.

Part IV is the bibliography and gives 38 recent references, 4 of which are personal communications and 6 unpublished data. Part V is the index. Like the second edition, the syllabus has a concise style of presentation. Each page has a topic title, a short outline highlighting the important points, and a brief paragraph of general discussion. Although the title refers to the general field of acute polio, the complete care of the severely involved respiratory patient is stressed and given in detail. The third edition is more comprehensive than the previous ones and gives more detail in several areas such as the progression of weaning the respirator patient, the mechanics and physiology of breathing, specifications of commonly used respirator equipment with exception of positive pressure devices; also an index has been added. To the knowledge of this reader, there is no other single book containing the desired information in this field and it should be extremely helpful to those who are responsible for any phase of the care of the respirator patient.

Poliomyelitis. *By W. Ritchie Russell, C.B.E., M.D. (Edin.). D.Sc. (Oxon.), F.R.C.P. (Edin.), F.R.C.P. (Lond.), Director, Department of Neurology, United Oxford Hospitals; Clinical Lecturer in Neurology, University of Oxford; Consultant Neurologist to the Army. Ed. 2. Cloth; price $3.00. Pp. 147; illus. Edwin Arnold Ltd., London, 1956. The Williams and Wilkins Co., Baltimore, 1956.*

In 1952 Dr. Russell wrote the first edition of *Poliomyelitis* to 1) present the disease as a whole, bringing together the contributions of many specialists, and 2) to point out the need for evaluation of new methods of treatment in order to avoid perpetuating ineffective methods. The second edition was written in 1956 with the same objectives and to present as many aspects of the disease as possible for the benefit of those who are familiar with only a few of its problems. Many sections have been rewritten in the light of recent contributions to the study of poliomyelitis.

The first three chapters cover pathology, epidemiology, quarantine, and prevention. Chapters four and five are devoted to physical examination of the patient and to factors which influence cell vulnerability. The latter stresses the importance of early rest, the effect of physical exercise during the acute phase, and the effect of trauma and tonsillectomy prior to the illness.

Chapters six through nine present the management and treatment of the poliomyelitis patient with specific, detailed discussion of the treatment of bulbar and respiratory cases. Included is a description of the Copenhagen method of artificial respiration by means of intratracheal intermittent positive pressure. There are also descriptions and illustrations of positive pressure mechanical pumps, tank respirators, cuirass respirators, and rocking beds used in England. The remaining chapters discuss the care of muscles and joints, convalescence and rehabilitation, physical therapy, and a brief section on the prospects for immunization against poliomyelitis. For references, the reader is referred to the bibliography and also to the supplements published by the National Foundation for Infantile Paralysis. There are several pictures, charts, and drawings, and an index is given at the end of the book.

Of particular interest to the physical therapist are some of the following procedures carried out for the patients under Dr. Russell's care. 1) During the acute stage of the disease, the importance of rest is stressed; gentle passive exercises to the extremities are given every 2-4 hours, and a complete change of body position is encouraged every 2-4 hours day and night. Passive exercises within painfree range and positioning are carried out by the nursing staff in addition to that done by the physical therapist. Hot packs are used for the relief of pain only and are considered less important than the frequent passive motion in the maintenance of comfort and range of motion. After the first three weeks, active exercises are encouraged to an increasing extent, including exercises to the point of fatigue. 2) In bulbar cases, the importance of prone and semiprone positioning is emphasized, and very little supine lying is allowed for a patient with any swallowing difficulty unless a tracheotomy has been performed.

The author has been concerned with several research projects connected with poliomyelitis and has seen the need for a book such as this which reviews the study of the disease as a whole. He writes from experience in the field as well as from the contributions of other specialties. The manner of presentation is clear and precise and the chapters and topics are titled for quick review or reference. In comparing this book with *Treatment of Acute Poliomyelitis* by Dr. Spencer, the latter gives more detailed information on the complete subject of the respirator patient and his equipment from the early indications of respiratory insufficiency through to progressive weaning. Dr. Russell rounds out the field of artificial respirators with inclusion of a description of the intermittent positive pressure machine used in England and the Copenhagen method of intratracheal in-

termittent positive pressure. Dr. Russell points out the place of the anesthetist in the positive pressure treatment. Dr. Spencer covers more completely the subject of normal and abnormal breathing, and precautions, signs, and treatment of all the various complications which may develop in the seriously involved poliomyelitis patient. This book should be of interest as a supplementary reference to physical therapists and other medical personnel working with the poliomyelitis patient.

The reviews here published have been prepared by competent authorities and do not represent the opinions of the American Physical Therapy Association.

Our Book Reviewers for February

Katherine Carlisle, Associate Director of Physical Therapy, Bouve-Boston School, Boston, Massachusetts.

Deborah Kinsman, Assistant Director, Physical Therapy Department, Vanderbilt University Hospital, Nashville, Tennessee.

Agnes P. Snyder, Lt. Col., AMSC, Chief, Physical Therapy Branch, Office of the Surgeon, Department of the Army, Washington, D. C.

Catherine Warren, Chief Physical Therapist, Peter Bent Brigham Hospital, Boston, Massachusetts.

Index to Current Literature

(continued from p. 97)

RESPIRATION

Hypertrophy of the Denervated Hemidiaphragm. D. M. Stewart and A. W. Martin, Am. J. Physiol., 186: 497-500, September 1956

Effect of Pregnancy on Pulmonary Function in Normal Women. A. Rubin, N. Russo and D. Goucher, Am. J. Obst. & Gynec., 72: 963-969, November 1956

Clinical Pulmonary Physiology. M. H. Williams, Yale J. Biol. and Med., 29: 60-68, September 1956

Effect of Total Immersion at Various Temperatures on Oxygen Uptake at Rest and During Exercise. L. G. Goff, H. F. Brubach, H. Specht and N. Smith, J. Appl. Physiol., 9: 59-61, July 1956

Pressure Breathing: Functional Circulatory Changes in the Dog. W. C. Kaufman and J. P. Marbarger, J. Appl. Physiol., 9: 33-37, July 1956

Effects of Body Tilting on Respiratory Mechanics. P. Colville, C. Shugg and B. G. Ferris, J. Appl. Physiol., 9: 19-24, July 1956

Alveolar Carbon Dioxide Levels in Acute Poliomyelitis. M. G. Crane, J. E. Affeldt, E. Austin and A. G. Bower, J. Appl. Physiol., 9: 11-18, July 1956

Determination of Mixed Venous CO_2 Tensions by Rebreathing. Clarence R. Collier, J. Appl. Physiol., 9: 25-29, July 1956

Effect of Obstruction to Breathing on the Ventilatory Response to CO_2. R. M. Cherniack and D. P. Snidal, J. Clinic. Investigation, 35: 1286-1290, November 1956

ULTRASOUND

Ultrasound in Neurology. William J. Fry, Neurology, 6: 693-704, October 1956

MISCELLANEOUS

Sleep and Variations in Certain Functional Activities Accompanying Cyclic Changes in Depth of Sleep. C. M. Brooks, et al., J. Appl. Physiol., 9: 97-104, July 1956

Osmotic Regulation of Body Fluids. G. D. Zuidema, N. P. Clarke and M. F. Minton, Am. J. Physiol., 187: 85-88, October 1956

Setting Up the Recreation Program: Part II. Beatrice H. Hill, Hosp. Management, 82: 50-51, October 1956

Physiological Chemistry of the Eye. Z. Dische, Arch. Ophth., 56: 587-634, October 1956

Medical Education in 19th Century Great Britain. William B. Walker, J. Med. Educ., 31: 765-777, November 1956

Interviewing With a Purpose. Maurice H. Greenhill, Am. J. Nursing, 56: 1259-1262, October 1956

Coming Meetings

The International Council for Exceptional Children will hold its convention in Pittsburgh, April 23-27, 1957, at the Penn-Sheraton Hotel. The meeting is sponsored jointly with the Pennsylvania Federation.

Maurice H. Fouracre, Teachers College, Columbia University, is program chairman; Jack Birch, Pittsburgh Public Schools, is local arrangements chairman; and Douglas Bowman, Washington Public Schools, Pennsylvania, is chapter workshop chairman.

What's New . . . . . .

20. Safety Sides

Safety Sides, according to the manufacturer, is the first short side guard which protects the patient while he is in a sitting position. The safety item travels upward with the backrest. When the bed is flat, Safety Sides enables the handicapped patient to turn himself with less difficulty and also may be used as support when the patient attempts to get in or out of bed. Hill-Rom Company, Inc.

For more information on items write to The Physical Therapy Review, 1790 Broadway, New York 19, N. Y.

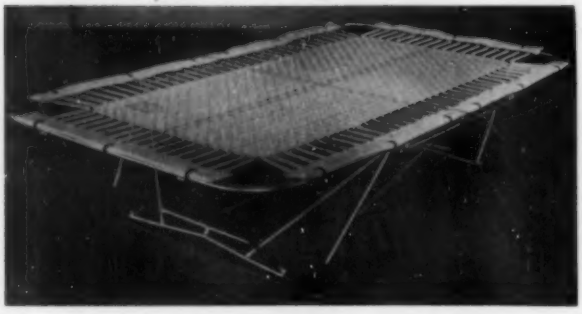
New items which may be of interest to physical therapists will be mentioned in these pages each month. The accompanying explanations are made by the manufacturers and have not been investigated by the *Physical Therapy Review.*

21. Automatic Voice Control

Automatic Voice Control that does away with the need for manually operating any controls during conversation, yet permits private and selective communication, is featured in the new Super Chief Automation Series 7700 Talk-A-Phone.

"Built-in Automation," which provides for automatic voice control, automatic traffic control, and automatic monitoring signal, as well as closed circuit conferences makes it unnecessary to use the talk-listen control as in earlier models, according to the manufacturer. Talk-A-Phone Co.

22. Nissen Trampolines



Nissen Trampolines, according to the manufacturer, are useful in the rehabilitation of the physically handicapped. Performing on the Trampoline contributes to the development of a keen sense of special adaptation, coordination, mental discipline, and body control for everyday living. Trampolining develops a fine motor timing and split-second reaction to emergencies of balance, and the physical condition is improved greatly. Trampolines are available in a variety of sizes. Nissen Trampoline Company.

Classified WANT-ADS

QUALIFIED PHYSICAL THERAPISTS for immediate placement in established Crippled Children's Hospital and rapidly growing comprehensive Rehabilitation Center treating wide variety of patients. Well equipped therapy department with pools and adequate space. Employee benefits. Maintenance if desired. Write: Jack E. Pearson, Morris Memorial Hospital and Rehabilitation Center, Milton, West Virginia.

Physical Therapist for Cerebral Palsy Center. Salary commensurate with experience. Five-day week, Monday through Friday, 8:45 A.M. to 4 P.M. Four week's paid vacation, six paid holidays, sick leave. Yearly merit increase. Excellent opportunity in well-equipped Center. Write Mrs. Margaret C. Hogan, Director, Cerebral Palsy Training Center, City Hospital, 25 Park Ave., Binghamton, N. Y.

PHYSICAL THERAPIST: Experienced, to work as a member of a medical team in a progressive department of health crippled children program, visiting therapy centers. Excellent supervision provides educational opportunities. Liberal personnel policies. Merit system coverage with job security. Write Glendon A. Scoboria, State Personnel Director, State Office Building, Hartford, Connecticut.

CEREBRAL PALSY CENTER therapist needed to work with children between 5 and 14. One month paid vacation. Salary dependent on experience and training. Write Lowell R. Clark, Program Coordinator, Grotto Educational Center, 2626 South Grand, St. Louis 18, Mo.

SUPERVISING PHYSICAL THERAPIST: In Hospital-School for rehabilitation of children with orthopedic handicaps. Complete interesting program. Good salary, merit increases. Annual paid vacation, sick leave, excellent retirement plan. Write Richard Eddy, Superintendent, Illinois Children's Hospital-School, 2551 North Clark Street, Chicago 14, Illinois.

DENVER, COLORADO has an opening for a Physical Therapist I at Denver General Hospital. Completion of approved training course in physical therapy plus membership or eligibility for membership in the American Physical Therapy Association or the American Registry of Physical Therapists are required. Salary range $306—383. For information write Career Service Authority, Room 178, City and County Building, Denver, Colorado.

Staff Physical Therapist at the University of Oregon Medical School Hospital, Portland, Oregon. In- and outpatient treatments. No cerebral palsy or poliomyelitic patients. Salary range from $310 to $400, with no maintenance. MALE PHYSICAL THERAPIST preferred. Hospital is new, with the department designed by a physical therapist. Good working and living conditions in a city with population of about 500,000. Write: Clarence W. Hultgren, RPT, Physical Therapy Supervisor. University of Oregon Medical School Hospital, 3181 S.W., Sam Jackson Park Road, Portland 1, Oregon.

QUALIFIED PHYSICAL THERAPIST for medium sized general hospital with well equipped P. T. department averaging 6 to 8 treatments a day, active and growing crippled children's program and rehabilitation service. Splendid medical staff, charming small Southern city less than two hours drive from Gulf of Mexico. Good working conditions. Apply to Director, John D. Archbold Memorial Hospital, Thomasville, Georgia.

QUALIFIED PHYSICAL THERAPIST for well equipped department in a modern 350-bed general hospital. Paid vacation, sick leave, 6 holidays, salary open. Apply Sister Mary Aquin, Administrator, St. Rita's Hospital, Lima, Ohio.

QUALIFIED PHYSICAL THERAPIST for offices of two orthopaedic surgeons. Write Dr. W. M. Watts. 5 Ravenscroft Dr., Asheville, N. C.

IMMEDIATE PLACEMENT for qualified Staff Physical Therapist in 335-bed general hospital, well equi: ped department serving both in- and outpatients, 40 hour week, paid vacations and sick leave. Write Administrator, Lima Memorial Hospital, Lima, Ohio.

MALE or FEMALE PHYSICAL THERAPIST wanted. Our physical therapy department is in need of a qualified male or female physical therapist to help service our 490-bed hospital and outpatient Clinic. Applicant selected will be subject to the treating of a complete cross-section of medical and surgical disability cases. We are just 10 minutes from the heart of Detroit and within walking distance of 2 universities. Salary is commensurate with experience. Apply: Personnel Director, the Grace Hospital, 4160 John R., Detroit 1, Mich.

(continued on next page)

Classified WANT-ADS

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The rate per insertion is $1.00 per line. Typewrite your advertisement carefully and count 50 characters and spaces per line.

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It is understood and agreed that the publisher shall have the right to reject or change the wording of any advertisement which in the opinion of the Editorial Board shall not be in agreement with the ethical standing of this publication.

Classified WANT-ADS

QUALIFIED PHYSICAL THERAPIST needed for 300-bed general hospital with expansion program underway. Vacation, sick leave and social security benefits. Salary open. Apply Alma F. Martin, Long Beach Community Hospital, Long Beach, Calif.

PHYSICAL THERAPIST, male or female, APTA, to work in well equipped, 70-bed rehabilitation hospital with an active outpatient and clinic facility. Liberal vacation, sick leave and holiday benefits. Salary commensurate with experience. Apply Administrator, Sunnyview, 124 Rosa Rd., Schenectady 8, N. Y.

Physical Therapist, STAFF POSITION, male or female. Salary commensurate with experience. Five-day week, liberal vacation, holiday and sick leave. Social Security. Apply Personnel Director, Crotched Mountain Rehabilitation Center for Children, Greenfield, N. H.

WANTED: PHYSICAL THERAPIST 550-bed general hospital. Modern department of Rehabilitation and Physical Medicine. All types of cases treated. Good salary. Social security and pension plan; 40-hour week. Apply Administrative Assistant, the Reading Hospital, Reading, Pennsylvania.

SUPERVISOR: Qualified physical therapist with degree needed to head up physical therapy department in a 263-bed psychiatric hospital, suburban Boston, Mass. Salary open. Write qualifications to Vera Kilstein, Pers. Dir., McLean Hospital, Waverly, Mass.

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CHIEF PHYSICAL THERAPIST: Male or Female. Must be registered A.R.P.T. member in good standing, five-day, forty-hour week, vacation, laundry, and one meal. Apply by letter giving academic training, experience, and salary expected to Mr. John H. Cocklin, Personnel Director, Jefferson Medical College Hospital, 10th & Sansom Streets, Philadelphia 7, Pa.

NEEDED: QUALIFIED physical therapist for staff position within agency or for home treatment program. Apply to Director, Curative Workshop, 615 N. Capitol, Lansing, Michigan.

STAFF PHYSICAL THERAPIST for medical school hospital. Active, varied, in- and outpatient service. Good working conditions. Write: Gwynn Brice, Univ. of Oregon Medical School, Portland 1, Ore.

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IMMEDIATE EMPLOYMENT for Physical Therapists in California State Hospitals. Salaries start at $4,296; promotional opportunities at $6,060. Requires graduation from approved physical therapy school and eligibility for California license or registration. Write California State Personnel Board, 801 Capitol Avenue, Sacramento 14, California.

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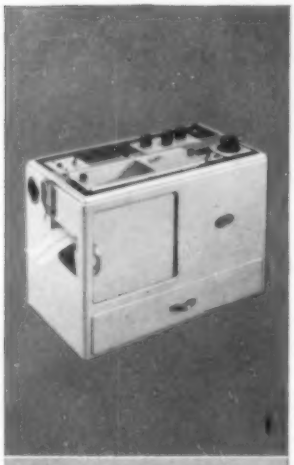

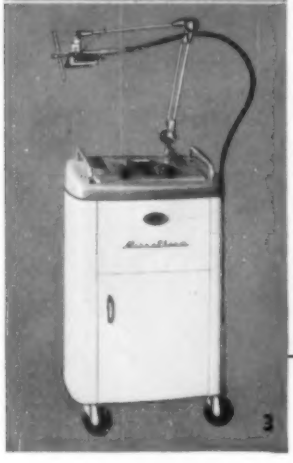

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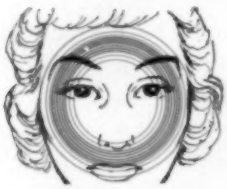

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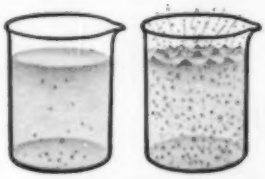

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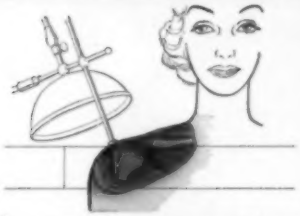

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